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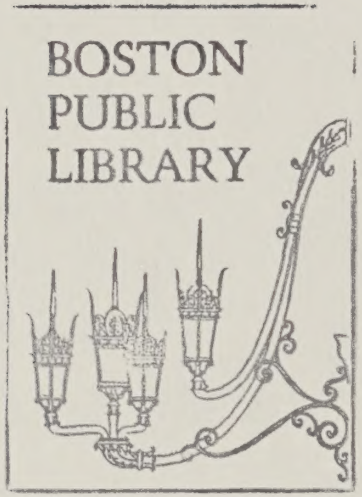
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MANPOWER SKILLS SURVEY

BOSTON STANDARD METROPOLITAN STATISTICAL AREA

MADE BY

THE BUREAU OF BUSINESS RESEARCH, COLLEGE OF BUSINESS ADMINISTRATION, BOSTON COLLEGE

FOR

THE DIVISION OF EMPLOYMENT SECURITY, COMMONWEALTH OF MASSACHUSETTS

BOSTON PUBLIC LIBRARY

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THE DIVISION OF EMPLOYMENT SECURITY, COMMONWEALTH OF MASSACHUSETTS

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FOREWORD

This Division was born in the great social legislation of the Nineteen Thirties and spent its first quarter century operating a free public employment service and administering a system of unemployment compensation. These were heavy enough assignments. However, another great wave of Federal legislation in the early 1960's brought new and even more challenging responsibilities.

The Area Redevelopment Act of 1961 provided occupational training, retraining, and refresher courses to the unemployed in areas of persistent unemployment. The Manpower Development and Training Act of 1962 extended retraining to unemployed and underemployed in all areas and ordered research to determine occupational categories in which jobs remain unfilled even in times of high unemployment because of shortages of qualified workers. The Trade Expansion Act of 1962 added additional training provisions for those displaced by cutbacks in export industries.

This heightened concern for retraining arose from the growing number of job dislocations that were accompanying a great surge of technological change. The loss of a great part of the New England textile industry threatened whole geographic areas as well as occupations with obsolescence. As early as 1956 the Massachusetts General Court had realized the necessity of retraining the unemployed and had provided extended unemployment benefits to eligible individuals enrolled in approved retraining courses.

The imperative question became "Retrain for what?" The Division determined enough immediate training needs to set up, with the Massachustts Divisions of Vocational Education and Apprentice Training, more than a hundred courses in a wide range of occupations. Boston College was asked to make a manpower skills survey of the Boston metropolitan area where manufacturing, which began in 1637 in a primitive Salem shipyard, is now dominated by the electrical-electronics industry and other activities of the aero-space age. The amount granted made it necessary to confine the study to selected occupations and employers.

The survey results give no simple answers. Strong demands in certain occupations such as draftsman or electronic technician/mechanic appear to be quantitatively balanced by even larger output of training schools except that no one can confidently predict how many of the newly trained will actually work in these occupations in this area. How many of the projected school output of 6,000 stenographers in the three years ending June 30, 1966, will on that date be actually at work with pad and pencil? If these questions recall the Yankee trick of answering one question by asking two others it is because manpower research in a dynamic society seems to yield more questions than answers.

ANTONIO ENGLAND, Director
Massachusetts Division of Employment Security

ACKNOWLEDGEMENTS

The Survey was conducted under a contract between Boston College (Bureau of Business Research, College of Business Administration) and the Massachusetts Division of Employment Security, under the general direction of Dr. Charles L. Vaughn, Director of the Bureau of Business Research. It was made possible by a grant of $35,000 from the Bureau of Employment Security, United States Department of Labor.

The project co-ordinator was Miss Mary E. Wilcox, formerly Chief Supervisor of Research and Statistics at the Division of Employment Security, who was assisted by Mr. Joseph Salvatore, Research Associate. Dr. F. Eugene Melder, Professor of Economics, Clark University, who had previously conducted a Manpower Skills Survey for Worcester, Massachusetts, acted as consultant in setting up the plans for the project.

By lending their endorsement and advice, Members of the Advisory Committee stimulated the excellent employer response, without which the Survey could not have been carried to completion. To the 653 employers who furnished the statistical information on which the estimates included in the report are based, the Survey staff wishes to express its gratitude.

Staff members of the Bureau of Business Research who participated in the Survey included Mr. George V. Babcock, Jr., Mr. David MacLaughlin, Mr. John G. Capezzuto, Mr. Carl W. Nielson, Jr., Mrs. Marie Vaughn, and Mrs. Miriam Reilly.

The whole-hearted cooperation of Mr. Antonio England, Director of the Massachusetts Division of Employment Security, Deputy Director Kenneth V. Minihan, Assistant Directors Joseph C. McHugh, Arthur L. Hinchey, and John F. Doherty is gratefully acknowledged. A list of all the other members of the staff of the Division of Employment Security who furnished information and valuable assistance would include a sizable representation of its personnel. Special mention must be made, however, of the major contribution of Miss Elinor J. Rowe, Chief Supervisor of Research and Statistics, who gave unsparingly of her own time and that of her staff to bring this Survey to a successful conclusion.

Acknowledgment should also be made of the contributions of Mrs. Anne R. Reppucci, who prepared the illustrations, of Miss Pauline Swift and Miss Margaret Mahan, who reviewed the Survey findings in the light of their special knowledge of the labor market of the Boston Standard Metropolitan Statistical Area, and of Miss Jane F. Sheehan, who coded the occupations which the respondents had added to their questionnaires; Miss Elizabeth Crowley and Mr. Nicholas Calandrella for their invaluable assistance in machine processing and Mrs. Maybelle Northcott and others of her staff of labor market economists (especially Messrs. Thomas J. Dolan and Eugene L. Hart) who gave us the benefit of their practical experience in reviewing the preliminary tabulations. The Survey staff is also indebted to Mrs. Bernadette MacDonald of the Division's Standard, Methods, and Planning Department for the set-up work involved in the preparation of the questionnaire forms, etc.; to Mr. Thomas E. Desmond of the Duplicating Section for his cooperation in reproducing the voluminous forms used in the Survey; and to Mr. Isaac F. Fine, Chief Employment Service Supervisor and Miss Velia Di Cesare of his Department for their interest and cooperation.

The Survey procedures, including sample design, sample size, and methodology, were those approved by the Bureau of Employment Security of the United States Department of Labor. They followed procedures outlined in the manual of the Bureau of Employment Security, which is titled "Training Needs Survey," although the magnitude and scope of the operation reflected to a considerable extent, the size of the budget made available for the project. During the entire course of the Survey, Mr. William E. Connors, of the New England Regional Office of the Bureau of Employment Security, was in close touch with its progress, and his cooperation and interest in the work have been of immeasurable help.

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A. INTRODUCTION

Discussions leading to the Manpower Skills Survey of the Boston Standard Metropolitan Statistical Area began in the summer of 1962 as a result of the Manpower Development and Training Act.

As originally conceived, the survey was intended to achieve the ends of the Training Needs Survey indicated by that Act, but discussions surrounding the survey delayed its inception until the spring of 1963, and the objectives were broadened to encompass a Manpower Skills Survey which would seek information about certain suspected declining, or anticipated surplus, occupations as well as those in which shortages might be expected.

In brief, the survey aimed at identifying two groups of occupations, namely:

1) Those in which it was anticipated that there would be important increases in employment (with consequent recruitment difficulties in the next three years due to a lack of qualified applicants), and

2) Those in which it was thought there might be significant declines in employment during the next three years.

To these ends a basic employer questionnaire was constructed and mailed to a representative cross-section of all employers in the Boston Standard Metropolitan Statistical Area. Employers who did not respond to the initial mailing were contacted again by mail and subsequently by telephone and by personal visit, if necessary. The results were processed by machine and are presented on the pages that follow.

The report is organized to show some important points regarding: 1) the background of the current and projected employment situation in the Boston Area; 2) the survey methods used in this study; and 3) the results of the survey.

AI. SURVEY HIGHLIGHTS

1.

The basic purpose of the Manpower Skills Survey was to obtain estimates of certain major aspects of labor supply and demand in **selected nonprofessional occupations above the unskilled level between mid-1963 and mid-1966 in the Boston Standard Metropolitan Statistical Area.** To achieve this end **school heads** and a representative cross-section of 653 **employers** were surveyed in regard to **81 occupations.**

2.

Employers indicated at least **some increased demand for expansion in 70 of the 81 occupations by mid-1966;** in the other 11, it appears that fewer workers will be required by mid-1966 than were employed at mid-1963.

In seven of the 81 occupations employers anticipated no labor-force withdrawals by mid-1966; **in each of the other 74, the need for at least some replacements for labor-force dropouts was anticipated by employers.**

3.

Although it would appear that employers characteristically overestimate future personnel requirements and their estimates should therefore probably be discounted somewhat, survey tabulations indicated an over-all **net demand to mid-1966 of approximately 107,000 new workers in the 81 occupations specifically studied.** This optimistic picture which employers painted was undoubtedly colored in part by the instruction to assume that recent uptrends in business and advances in technology and science to mid-1963 would continue through the three years ahead to mid-1966.

Of considerable interest is the fact that, according to employers' expectations, **about three-fifths (63,000) of the 107,000 new workers in the 81 occupations would be required to replace labor force dropouts and only two-fifths (44,000) would be needed to fill jobs newly created.**

4.

The estimate of 63,000 new workers required for expansion in the **81 specific occupations** compares with an estimate of **74,000 new workers** required for expansion in **all** occupations, based upon employers' projections of total employee requirements. The number of new workers required to replace labor-force dropouts in all occupations cannot be estimated from the Survey, but the total number will undoubtedly be much greater than that required for expansion, as evidenced by results with the 81 occupations.

5.

As the following table shows, there were substantial differences between the major occupational groups in the extent and source of personnel requirements, at least in terms of the specific occupations studied in this Survey.

Major occupational groups	Estimates based on employers' projections of new workers required mid-1963 to mid-1966		
	Total	For Expansion	For replacing labor-force dropouts
All 81 occupations	107,000	44,000	63,000
Semiprofessional	8,000	5,000	3,000
Clerical and sales	64,000	22,000	42,000
Service	11,000	3,000	8,000
Skilled	13,000	8,000	5,000
Semiskilled	11,000	6,000	5,000

(These are net figures after deductions for contraction in declining occupations and for output of formal **company** training programs.)

As the table shows, **withdrawals** from the labor force will create most of the demand for new workers in the clerical and sales and service groups, where large numbers of women are employed, but it should be noted that half of the total demand **for expansion** in the entire list of occupations is also concentrated in the clerical and sales category. In the skilled occupations (in which the work force is principally male) the largest part of the total anticipated demand for new workers stems from **new jobs.**

6.

Two-year output from public and private schools in the 81 selected occupations was estimated at approximately 32,000 trainees, according to the reports from public and private schools. Extrapolating, one might expect total output from these sources to reach **48,000 trainees in the three years between mid-1963 and mid-1966.**

MDTA had already added 740 trained workers in these occupations during the few months of its existence, but because of the **ad hoc** nature of this program no attempt was made to estimate MDTA output to mid-1966.

It should be noted that the anticipated output from formal company training programs is already subtracted from the above demand figures, and intensive study of informal on-the-job training was beyond the scope of the study.

7.

Because of Boston's position as the New England Regional center for trade, finance, and service, manufacturing and the occupational

skills associated with manufacturing are relatively less important in this SMSA than in the remainder of the state. (Nevertheless, in 1960 more than 40 percent of all Massachusetts residents employed by manufacturing establishments lived in the Boston area.)

The predominance of the more stable nonmanufacturing industries has been reflected, over the years, in the Area's relatively low unemployment rate, which has remained consistently below six percent of the civilian labor force, while jobless rates in the manufacturing centers have fluctuated above and below that level as production industries contracted or expanded their work force.

8.

The rise in the skill levels of the Area's work force in response to expanding demand in the more exacting jobs is indicated by the shifts between 1950 and 1960 in the occupational distribution of employed residents of the Boston SMSA.

As compared with an average increase of 11.9 percent in the total number of persons employed in **all** occupations, the increase for professional and kindred workers was 35.6 percent over the ten-year period. The gain for clerical and kindred workers was 16.7 percent. On the other hand, the number of operatives and kindred workers dropped 4.3 percent and the number of laborers fell 20.3 percent.

9.

In 1960, the average Boston resident 25 years of age and over was better educated than his counterpart in other Massachusetts areas as well as in the United States as a whole (12.2, 10.7, and 10.6 years of schooling, respectively.) Thus, the local labor supply should be better able to meet the demand for higher skills presented by the technical needs of the "newer" industries and the research and development associated with them, and by the adoption of automation in other fields of activity.

B. DESCRIPTION OF THE BOSTON STANDARD METROPOLITAN STATISTICAL AREA

1. The Geography

The occupations and industries in which an area's labor force is employed are influenced to a large degree by its geographical location, its topography, its climate, and other features of its natural environment. In its **Monograph** for the Boston Metropolitan Area (November 1962 revision), the Massachusetts Department of Commerce sums up the effects of natural environment upon the development of the Boston Area as follows:

> ". . . the two most vital factors in the swift and successful colonization and industrialization of the Area were an abundance of both water power and marine resources. Travel by land was difficult in those (early colonial) days. The most logical, and safest mode of transportation was by ship, and settlements were quickly made to the north, in Salem, Beverly, Lynn and Boston. Great natural harbors and rivers gave impetus to the rapid rise of one of the Area's earliest and greatest industries—shipbuilding. Herring and King Cod were in abundance in the off-shore waters, to feed the burgeoning communities and provide another great industrial base and item of trade. Saw mills, grist mills and tanneries mushroomed, powered by the waters of inland streams . . ."

2. The Cities and Towns

As extended in 1960 prior to the taking of the United States Decennial Census, the Boston Standard Metropolitan Statistical Area comprised the following 76 cities and towns:

Arlington	Framingham	Nahant	Somerville
Ashland	Hamilton	Natick	Stoneham
Bedford	*Hanover	Needham	*Sudbury
Belmont	Hingham	Newton	Swampscott
Beverly	*Holbrook	Norfolk	*Topsfield
Boston	North Reading	Hull	Wakefield
Braintree	Lexington	*Norwell	Walpole
Brookline	Lincoln	Norwood	Waltham
Burlington	Lynn	Peabody	Watertown
Canton	Lynnfield	Pembroke	Wayland
Cambridge	Malden	Quincy	Wellesley
Chelsea	Manchester	*Randolph	Wenham
Cohasset	Marblehead	Reading	Weston
Concord	*Marshfield	Revere	Westwood
Danvers	Medfield	*Rockland	Weymouth
Dedham	Medford	Salem	Wilmington
Dover	Melrose	Saugus	Winchester
*Duxbury	Middleton	*Scituate	Winthrop
Everett	Milton	Sharon	Woburn

* Towns added to the Metropolitan Area in 1960.

Figure 1

BOSTON STANDARD METROPOLITAN STATISTICAL AREA (BOSTON SMSA)

The accompanying map shows the location of the 75 satellite communities clustered around the core city of Boston. Many of them are virtually "bedroom" towns, with most of their resident labor force employed elsewhere in the SMSA.

3. Route 128

To a large degree the Area owes its industrial expansion in the past and its anticipation of further development in the years ahead to the establishment, first of the railroads and, later, of express highways, which have facilitated commuting between one section and another, thus enhancing the mobility of the Area's labor force. The major expressway facilitating such commuting is Route 128, on which many industrial plants—particularly in the electrical-electronics industry—have been located or relocated in the past two decades.

4. The Population

Although the area under survey comprises only 12.2 per cent of Massachusetts total land area, it accounted for half of the residents of the Commonwealth in 1960, according to the U. S. Census for that year. The population of the Commonwealth in 1960 was 5,149,317; in the Boston Standard Metropolitan Statistical Area it was 2,590,040.[1]

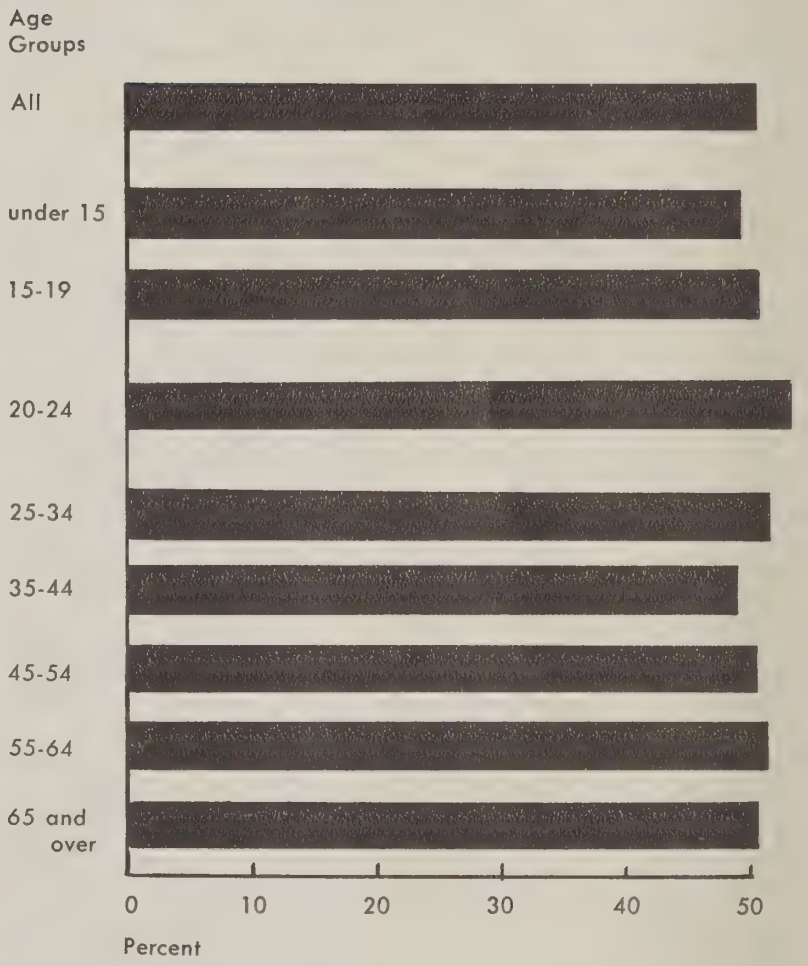
a) **Age.** — In their distribution by age groups, the residents of the Boston SMSA differed only slightly from persons living in other Massachusets areas. The age distributions published by the Bureau of the Census show that the area covered by this survey accounted for almost exactly half of each age group, with the proportion slightly under 50 percent for children under 15 and (with two exceptions) only a little above that figure for each of the older age-brackets. The proportion of persons in the 35-to-44 classification was 49.1 percent of the state total; for the group in the 20-to-24 bracket, the percent was 53.7.

The higher-than-average figure for the latter group was a reflection of the concentration of educational facilities in and around Boston. In the U. S. Census for 1960 (as well as in that for 1950) college students were tallied in the population of the city or town in which they were residing temporarily while attending school.

[1] Department of Commerce, Bureau of The Census, **U. S. Census of Population: 1960; General Population Characteristics, Massachusetts** (Washington: U. S. Government Printing Office), Series PC (1), 23D, pp. 273, 274.

Figure 2

PERCENT OF MASSACHUSETTS RESIDENTS LOCATED IN THE BOSTON SMSA, 1960 BY AGE GROUPS



Source: Department of Commerce, Bureau of the Census, U. S. Census of Population: 1960; Detailed Characteristics, Massachusetts (Washington: U. S. Government Printing Office), Series PC(1), 23D, pp. 273, 274.

The median age for persons residing in the Boston SMSA was almost identical with the State figure: 32.0 years for the SMSA vs. 32.1 years for the State.

b) **Sex.** — The 1960 Census showed a somewhat higher percent of females in the population of the Boston SMSA than was true of the population of the remainder of the State. Both Massachusetts percents were also higher than the nationwide figure.

Females as a Percent of the 1960 Population

	Percent
United States	50.7
Massachusetts	51.7
Boston SMSA	52.0
Remainder of State	51.4

Calculated from: Department of Commerce, Bureau of The Census, **Statistical Abstract of the United States, 1961** (Washington: U. S. Government Printing Office), p. 27. Department of Commerce, Bureau of the Census, **U. S. Census of Population: 1960, General Population Characteristics, Massachusetts,** Series PC (1), 23B, pp. 31, 40.

c) **Education.** — While the Census Bureau has not published tabulations of the **labor force** in terms of educational attainment, it has released such data with respect to **all** residents 25 years of age and over as of 1960. Such residents of the Boston SMSA had attained a higher level of education, on the average, than those living in other parts of Massachusetts (see Table 1). For the Boston SMSA, the median number of years of school completed was 12.1, as compared with 10.7 for the remainder of the State. The corresponding average for the United States was 10.6 years.

Relatively fewer local residents in this age-group had had less than five years of schooling: 5.2 percent as compared with 6.8 percent for those living in the remainder of the State. For the nation as a whole the corresponding figure was 8.3 percent.

At the other end of the scale, the Census tabulations indicated that 21.7 percent of the Boston SMSA residents in this age-group had had more than a high-school education, while 11.2 percent had completed at least four years of college. Again these Boston residents had fared better than their counterparts living in other parts of the Commonwealth: only 14.6 percent of such other Massachusetts residents had had more than a high-school education and only 6.4 percent had completed four or more years of college. The corresponding percents for the United States were 16.5 percent and 7.7 percent, respectively.[1] The concentration of institutions of higher education in the Boston SMSA has undoubtedly been at last partly responsible for its comparatively favorable situation.

The 5.2 percent of Boston SMSA residents over 24 years of age who had not completed at least five grades of elementary school included 37,768 residents who had had no formal education whatever and 41,414 others who had left elementary school before the end of the fifth year. It will be realized that many of these persons are **not** in the labor force: some are persons in the upper age-brackets who either have never worked or have retired; others are married women who remain at home. Those who **are** members of the labor force are most likely to be found in unskilled occupations where job opportunities are diminishing from year to year. They also comprise the group—sometimes described as "functionally illiterate"—who, once they have been displaced, present special problems in connection with training and retraining programs.

1 Department of Commerce, Bureau of The Census, **Statistical Abstract of the United States, 1963.** (Washington: U. S. Government Printing Office), p. 119.

Table 1

YEARS OF SCHOOL COMPLETED
PERSONS 25 YEARS OF AGE AND OVER, 1960*
BOSTON SMSA AND REMAINDER OF STATE

Years of school completed	Boston SMSA			Remainder of State		
	Number	Percent	Cumulative	Number	Percent	Cumulative
Totals	1,519,536	100.0		1,491,081	100.0	
None	37,768	2.5	100.0	45,661	3.1	100.0
Elementary:						
1 - 4	41,414	2.7	97.5	55,215	3.7	96.9
5 and 6	66,103	4.4	94.8	112,714	7.6	93.2
7	57,150	3.8	90.4	106,483	7.1	85.6
	209,295	13.8	86.6	258,451	17.3	78.5
High School:						
1 - 3	296,660	19.5	72.8	307,713	20.6	61.2
4	481,529	31.6	53.3	386,979	26.0	40.6
College:						
1 - 3	159,578	10.5	21.7	122,502	8.2	14.6
4 or more	170,039	11.2		95,363	6.4	
Median number of years		12.1			10.7	

* Calculated from: Department of Commerce, Bureau of the Census; **U. S. Census of Population: 1960. Detailed Characteristics, Massachusetts.** (Washington: U. S. Government Printing Office), Series PC (1), 23D, pp. 299, 301.

5. The Industry

a) **1960 Composition.** — Boston is the principal metropolitan trading and financial center in the New England Region. It has achieved world-wide fame as the site of outstanding educational and financial institutions, hospitals, and medical research facilities. Of equal importance is the space-age industrial and scientific research and development, much of it under Government contract, being carried on in the Area. Figure 3 depicts the Area's industrial composition in 1960.

Within the 76 cities and towns comprising the Boston SMSA in 1960 may be found some representation of practically any industry found elsewhere in the Commonwealth; and in contrast to some of the other metropolitan areas in the United States, the Boston Area has escaped becoming a one-industry area.

Since the occupations in which an area's labor force is engaged are determined by the type of industries to be found there, it will be of interest to examine the industrial distribution of employees residing in the Boston SMSA as tallied by the U. S. Census of 1960.

Because the Boston SMSA accounts for substantially half of the State's entire labor force, a comparison of Boston's industrial distribution with that for the State as a whole tends to obscure the marked differences in industrial pattern between Boston and other Massachusetts areas. For this reason, the accompanying Table 2 and Figure 3, have been devised to contrast the industrial distribution of the Boston SMSA employed work force, on the one hand, with that of the remainder of the Commonwealth (exclusive of the Boston Area), on the other.

The concentration of wholesale and retail trade and the heavier representation of the financial and service industries in this regional center are evident from the following table. Nevertheless, it may also be noted from the table that more than 40 percent of all Massachusetts residents employed by manufacturing concerns in 1960 (294,434 of the total of 709,268) lived in the Boston SMSA.

Largely because of the domination of the more stable nonmanufacturing industries, the unemployment rate for the Boston SMSA has, over the years, remained below the 6-percent level, while the rates in other areas throughout the State, with their relatively higher stake in manufacturing employment, have moved above and below this sensitive level as economic conditions caused production to contract and expand, with resultant layoffs and recalls of workers. (See further discussion of unemployment rates in Section D.)

In connection with the accompanying Table 2 and Figure 3, it should be borne in mind that the figures shown for the construction industry represent the number at work in the final week of March, a time of the year when that industry has barely begun to rebuild its forces after the winter lull in outdoor activitiy.

Table 2

INDUSTRY GROUP OF EMPLOYED PERSONS, 1960[a]
BOSTON SMSA AND REMAINDER OF STATE

INDUSTRY	BOSTON		REMAINDER OF STATE	
Totals	1,023,725	100.0	976,587	100.0
Agriculture	5,218	.5	16,900	1.7
Forestry and fisheries	1,193	*	2,836	.3
Mining	597	*	616	.1
Construction	51,042	5.0	48,781	5.0
Manufacturing	294,434	28.8	414,834	42.5
Railroad and railway express service	6,971	.7	5,111	.5
Trucking service and warehousing	12,277	1.2	11,077	1.1
Other transportation	19,064	1.9	6,802	.7
Communications	16,929	1.7	11,180	1.1
Utilities and sanitary service	13,132	1.3	12,921	1.3
Wholesale trade	42,229	4.1	23,682	2.4
Food and dairy products stores	29,327	2.9	26,310	2.7
Eating and drinking places	27,386	2.7	23,350	2.4
Other retail trade	91,984	9.0	82,252	8.4
Finance, insurance and real estate	62,810	6.1	33,497	3.5
Business services	17,945	1.8	7,749	.8
Repair services	10,902	1.1	11,128	1.1
Private households	17,289	1.7	14,674	1.5
Other personal services	29,569	2.9	23,270	2.4
Entertainment and recreation services	6,871	.7	5,041	.5
Hospitals	36,617	3.6	31,684	3.2
Educational services: Government	28,718	2.8	31,823	3.3
Private	35,371	3.5	17,529	1.8
Welfare, religious and nonprofit membership organizations	13,542	1.3	11,166	1.1
Other professional and related services	40,279	3.9	25,200	2.6
Public administration	56,668	5.5	38,325	3.9
Industry not reported	55,361	5.4	38,849	4.0

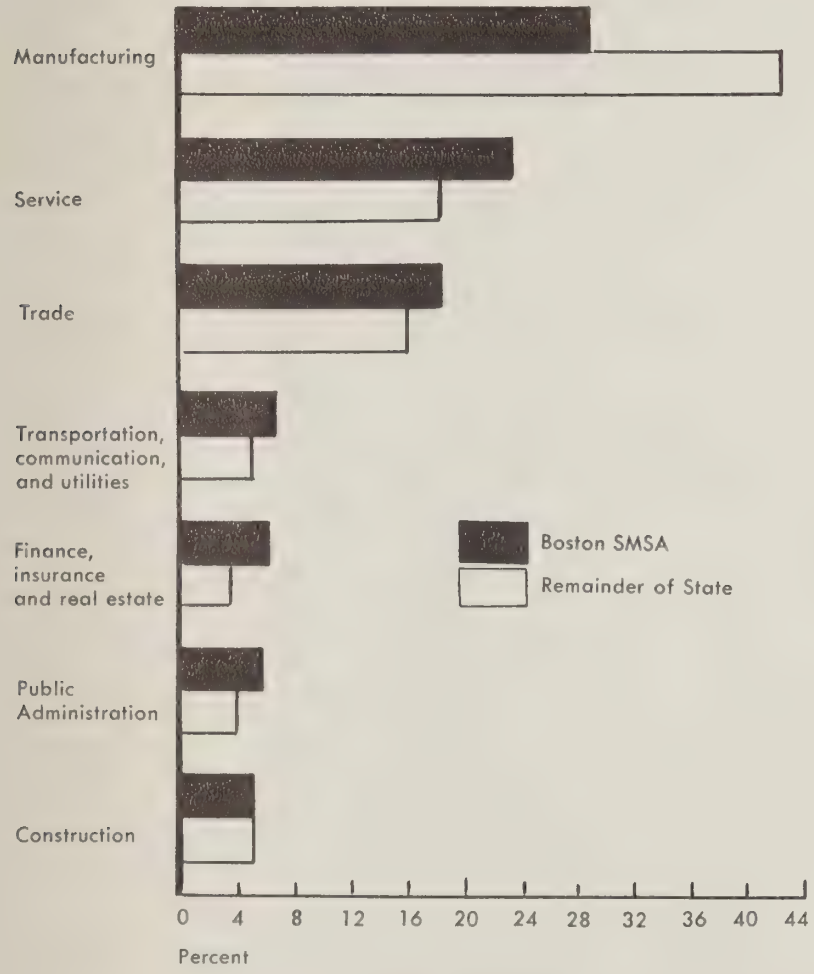
* Less than .05.

[a] Includes self-employed.

Calculated from: Department of Commerce, Bureau of The Census, **U. S. Census of Population: 1960. General Social and Economic Characteristics, Massachusetts** (Washington: U. S. Government Printing Office), Series PC. (1), 23D, pp. 143, 201.

Figure 3

PERCENT DISTRIBUTION OF EMPLOYED RESIDENTS, 1960*
BY INDUSTRY DIVISIONS
BOSTON SMSA AND REMAINDER OF STATE



* Includes self-employed

Calculated from: Department of Commerce, Bureau of the Census, **U. S. Census of Population: 1960. General Social and Economic Characteristics, Massachusetts** (Washington: U. S. Government Printing Office), Series PC(1), 23C, pp. 143, 201.

b) **Prospective Changes to 1966.**—Figure 4 shows over-all average employment in nonagricultural industries and in the major industry divisions for the years 1953 through 1963, as estimated by the U. S. Bureau of Labor Statistics, and projections to 1966 based on the percentage changes in employment requirements indicated by respondents to the Survey questionnaire.[1]

In estimating employee requirements for the future, in terms of both over-all totals and the selected occupations surveyed, respondents were instructed to assume "that present trends (in the late summer and early fall of 1963) in business, technology, and science will continue."

On the basis of forecasts by employers who participated in the Survey, as indicated by their estimated employee requirements as of mid-June 1966, it would appear that over-all wage and salary employment in the SMSA—which was estimated by the Bureau of Labor Statistics at a monthly average of 1,104,400 for the year 1963—should show a gain of approximately 74,400 (about 6.7 percent) between mid-June 1963 and mid-June 1966.

By industry divisions, this projected over-all increase in employment to 1966 (74,400) is distributed as follows:

	Projected increase in employment to 1966
Manufacturing	24,000
Service	22,900
Wholesale and retail trade	17,400
Government	5,600
Transportation, communication and utilities	2,200
Finance, insurance and real estate	2,000
Construction	300

While the projections do not include any allowance for employment by new employers who may be expected to begin business in the SMSA during the projection period, they do take into account prospective declines in work forces reported by responding employers.[2]

It would appear that employers characteristically overestimate future personnel requirements. Whereas employer forecasts indicate an over-all increase of 24,000 in manufacturing employment between June 1963 and June 1966, the actual trend in such employment may continue to be down, as it has been between June 1963 and March 1964.

[1] An exception was made in the case of the construction division in view of the sparsity of its representation among the respondents. For this division, the projection to 1966 represents an extrapolation of the trend since 1952.

[2] However, in view of the uncertainty regarding its plans, the Bethlehem Steel Co. was an outstanding nonrespondent, and the decline in employment at its Quincy Shipyard from its June-1963 total has therefore not been taken into account in the projections.

Of the estimated total of 285,300 employed by the Area's manufacturers at mid-June 1963, respondents accounted for 142,490, and those who were able to estimate their requirements to June 1966 reported 133,772 employed in June 1963, representing a very sizeable proportion of the total for the industry division. As would be expected, there were variations among the component major industry groups in the degree of optimism indicated by employment forecasts, but practically all groups looked forward to some expansion. (The outstanding exception was the food-products industry, whose 1966 requirements showed a drop of 4.5 percent from its June-1963 total. In this industry, automation has been the important factor in reducing employment.)

The optimism of the manufacturers was shared — in varying degrees — by the trade and service industry division, where population gains are usually reflected in expansion in business and resulting increases in work forces.

The further rise anticipated in government employment extended the gradual upward trend which had persisted over the past decade, and is a reflection of the rising population with its increased demands for public services, including schools, police and fire protection, health facilities, etc.

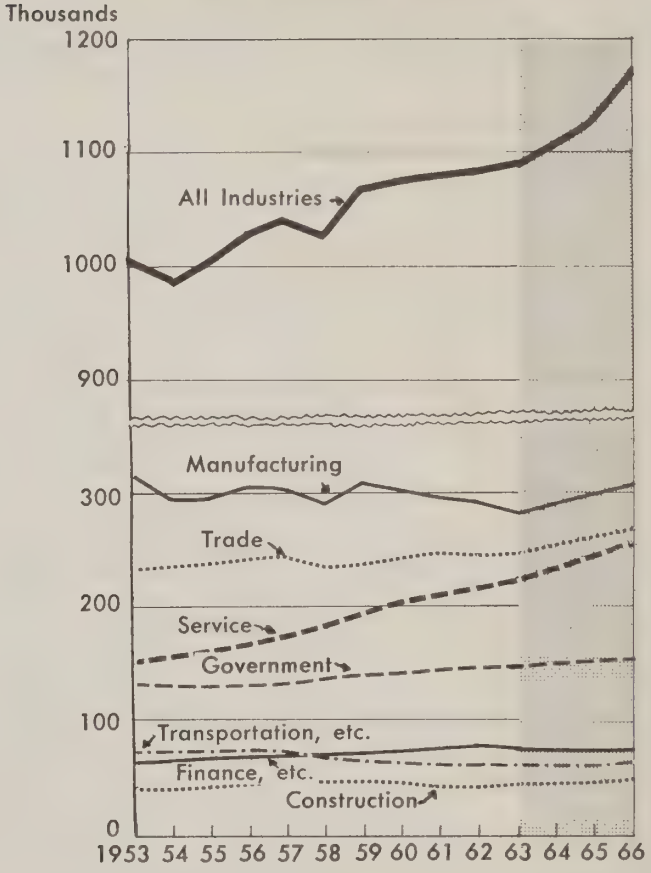
Several factors account for the smallness of the projected net increase in over-all work forces of the utilities division. The railroad situation is the major depressant, but gas and electric utilities firms also expect to need fewer people in 1966 than in 1963. Respondents in the communications industry accounted for almost 93 percent of the total June-1963 employment in that industry; they looked forward to employing almost exactly the same number of persons in 1966 as in 1963.

Of the industries comprising the finance, insurance and real estate division, the two insurance groups accounted for nearly half of the division's total June-1963 employment; the net gain expected in these two industries by 1966 was partly offset by the slight losses anticipated in other components of the division, including banking. (Among these other industries were several which were only sparsely represented in the responses and the anticipated net change shown might vary somewhat, in either direction, if additional data were available.)

Because of the paucity of its representation among the respondents, no attempt was made to forecast the trend for the construction industry on the basis of the Survey information. Instead the trend of the past few years was extrapolated, with results which would indicate that the work force would be maintained at practically the same level as in 1963, with automation enabling the industry to carry on expanded construction activity without any net addition to the over-all number of workers employed.

Figure 4

AVERAGE EMPLOYMENT IN NONAGRICULTURAL INDUSTRIES IN THE BOSTON SMSA YEARS 1953 THROUGH 1963, AND PROJECTIONS TO 1966 BY MAJOR INDUSTRY DIVISIONS



Sources: Years 1953 through 1962: U. S. Department of Labor, Bureau of Labor Statistics, **Employment and Earnings Statistics—States and Areas**; Year 1963: Preliminary estimates supplied by the New England Regional Office of the Bureau of Labor Statistics; Years 1964 through 1966: Projections based on respondent's expectations, except for construction, where the trend line has been extrapolated (because of inadequate representation in the survey responses).

The plant additions, educational facilities, shopping centers and industrial parks—some in the planning stage and others already in process of construction throughout the Area—promise further expansion in employment.

The establishment in the Boston Area of an Electronics Research Center by the National Aeronautics and Space Agency may be expected to improve the Area's economy not only in terms of the workers to be employed there, but also in the number of additional jobs in other industries which should be induced by its presence. This stimulus to employment, however, will be offset to some extent, by layoffs at the Quincy Shipyard and the Boston Naval Shipyard at Charlestown, as well as by recent work-force reductions in the electrical-electronics industry. The phasing-out of the Watertown Arsenal will also exert an adverse influence.

Over its long history since early colonial days, the Area has undergone many changes in its industrial pattern, while still retaining over the years its importance as the training and financial center for the New England Region.

C. CHARACTERISTICS OF THE LABOR FORCE

1. Distribution by Age

In terms of age-distribution of its labor force, the Boston SMSA differed only slightly from the remainder of the State, as the following table demonstrates.

Table 3

DISTRIBUTION OF THE LABOR FORCE BY AGE GROUPS, 1960
BOSTON SMSA AND REMAINDER OF STATE

Age Groups	Boston SMSA		Remainder of State	
	Number	Percent	Number	Percent
Total — All age groups	1,078,471	100.0	1,050,814	100.0
14 — 17	39,033	3.6	39,301	3.7
18 — 24	146,941	13.6	129,374	12.3
25 — 34	208,719	19.4	202,010	19.2
35 — 44	234,135	21.7	233,523	22.2
45 — 64	387,822	36.0	393,783	37.6
65 and over	61,821	5.7	52,823	5.0

Calculated from: Department of Commerce, Bureau of the Census, U. S. Census of Population: 1960. Detailed Characteristics, Massachusetts (Washington: U. S. Printing Office), Series PC (1) 23D, pp. 337 and 340.

2. Distribution by Sex

As was true of the State as a whole, almost two-thirds of the labor force of the Boston Standard Metropolitan Statistical Area in 1960 were males—64.6 percent for Boston and 64.8 percent for the State.

Table 4

LABOR FORCE DISTRIBUTION BY SEX, 1960
MASSACHUSETTS, BOSTON SMSA AND REMAINDER OF STATE

	Massachusetts		Boston SMSA		Remainder of Massachusetts	
	Number	Percent	Number	Percent	Number	Percent
Total	2,129,285	100.0	1,078,471	100.0	1,050,814	100.0
Males	1,375,779	64.6	694,848	64.4	680,931	64.8
Females	753,506	35.4	383,623	35.6	369,883	35.2

Source: Department of Commerce, Bureau of the Census, U. S. Census of Population: 1960, General Social and Economic Characteristics, Massachusetts (Washington: U. S. Government Printing Office), Series PC (1) 23C, pp. 135, 173.

Of the Area's male population 14 years of age or older in 1960, 78.1 percent were in the labor force, as compared with a slightly lower percent for the remainder of the State.[1] The national rate was 79.7.[2]

3. Women in the Labor Force

As indicated above, some 36 percent of the Area's labor force in 1960 were females and 64 percent, males. (Of all males 14 years of age and over, 78 percent were in the labor force as compared with 38 percent for females in that age group.)

The percentages of women who are in the labor force show wide variations as related to their marital status. These variations are highlighted in Table 5, which also compares 1960 rates with those for 1950. It will be observed that while unmarried women accounted for more than half of the Area's female labor force in 1950, their representation had diminished to less than 40 percent in 1960, while the proportion of married women (spouse present) in the female work force had risen sharply from 29.9 percent of the 1950 total to 42.0 percent of the total in 1960, and the percentage of married women (spouse present) who were in the labor force had jumped from 18.1 percent to 29.2 percent.

The heavy influx of married women in the Boston Area is consistent with experience throughout the Nation. In Massachusetts as a whole, the participation rate of these women was boosted over

[1] Department of Commerce, Bureau of Census, U. S. Census of Population: 1960. Detailed Characteristics, Massachusetts (Washington: U. S. Government Printing Office), Series PC (1), 23D, pp. 337, 340.

[2] Department of Commerce, Bureau of the Census, Statistical Abstract of the United States, 1961 (Washington: U. S. Government Printing Office), p. 203.

TABLE 5

WOMEN 14 YEARS OF AGE AND OVER

SINGLE, MARRIED, SPOUSE PRESENT AND "OTHER"[1]

PERCENTS IN THE LABOR FORCE OF THE BOSTON SMSA

1960 and 1950

Marital Status	1960[2]				1950				Increase or Decrease			
		Labor Force				Labor Force						
	Population	No.	Percent of Population	Percent of Female Labor Force	Population	No.	Percent of Population	Percent of Female Labor Force	Population Number	Population Percent	Labor Force Number	Labor Force Percent
Total 14 and over	1,007,033	383,623	38.1	100.0	975,245	315,795	32.4	100.0	+31,788	+3.3	+67,828	+21.5
Single	265,244	151,415	57.1	39.5	279,295	164,845	59.0	52.2	-14,051	-5.0	-13,430	- 8.1
Married (Spouse present)	551,060	160,950	29.2	42.0	523,430	94,595	18.1	29.9	+27,630	+5.3	+46,355	+49.0
Other	190,729	71,258	37.4	18.5	172,520	56,355	32.7	17.9	+18,209	+10.6	+14,903	+26.4

[1] Married, husband absent; widowed; divorced.

[2] The 1960 figures include the population and labor force of 10 towns which were added to the SMS Area definition in that year.

Sources: Department of Commerce, Bureau of the Census, U.S. Census of Population: 1950, Vol. II, Characteristics of the Population, Part 21 Massachusetts (Washington: U.S. Government Printing Office) p.163. U.S. Census of Population: 1960, Detailed Characteristics, Massachusetts, Series PC(1)23D, p.345

the decade under review from 21.8 percent in 1950 to 32.2 percent in 1960. Though the rate of increase in the national average was considerably lower, the same trend is indicated: slightly less than one-fourth of the country's married women with husbands present were in the 1950 labor force; by 1960 this ratio had risen to 30.5 (Table 6), with data for 1961 and 1962 showing an even higher rate of participation—32.7 percent.[1]

Table 6

MARRIED WOMEN (HUSBAND PRESENT) IN LABOR FORCE AS PERCENT OF NUMBER OF SUCH WOMEN 14 YEARS OF AGE AND OVER IN POPULATION, 1960 AND 1950, UNITED STATES, MASSACHUSETTS, AND THE BOSTON SMSA*

	1960			1950		
		In Labor Force			In Labor Force	
	In population	Number	Percent of number in population	In population	Number	Percent of number in population
United States	40,205,000	12,253,000	30.5	37,391,000	9,273,000	24.8
Mass.	1,124,933	362,704	32.2	1,063,445	232,275	21.8
Boston SMSA	551,060	160,950	29.2	523,430	94,595	18.1

*The ten towns added to the Boston Standard Metropolitan Statistical Area in 1960 had a total population of 86,703. Labor-force data are not available for the smaller towns in this group, but it is likely that their inclusion in the 1950 figures would not result in any significant change in the percents shown for the SMSA.

Sources: United States data: Department of Commerce, Bureau of Census, **Statistical Abstract of the United States, 1958**, (Washington: U. S. Government Printing Office), p. 214; **Statistical Abstract of the United States, 1961**, p. 214.

Massachusetts and Boston data: Department of Commerce, Bureau of the Census, **U. S. Census of Population: 1950**, Vol. II **Characteristics of the Population, Part 21, Massachusetts**, (Washington: U. S. Government Printing Office), pp. 162, 163. 1960: Department of Commerce, Bureau of the Census, **U S. Census of Population: 1960, Detailed Characteristics, Massachusetts**, (Washington: U. S. Government Printing Office), Series PC (1), 23D, pp. 343, 345.

Of the net addition to the Area's labor force between 1950 and 1960 (102,636) nearly 65 percent (66,355) was accounted for by the increase in the number of women workers in this category.

On the basis of recent experience, it is reasonable to assume that this uptrend will continue (with possibly some slowing-down in the rate of increase), so that some of the needs in "shortage" occupations may be met by wives returning to the labor market.

[1] See **Manpower Report of the President and a Report on Manpower Requirements, Resources, Utilization, and Training by the U. S. Department of Labor**, transmitted to the Congress March, 1963 (Washington: U, S. Government Printing Office), p. 150.

4. Projections to 1970

Projections of the labor force of the Commonwealth furnished by the U. S. Department of Labor[1] presage an expansion of 147,000 (6.9 percent) by 1965 (from 2,130,000 in 1960 to 2,277,000 at the end of the five year period) and an increase of 241,000 to 2,371,000 (11.3 percent over 1960) by 1970.

The projections made by the U. S. Department of Labor also indicate that the larger part of the increase in the first five-year period will be in terms of women, while in the second five-year period more men than women will be added to the work force. Of the projected gain for the State (147,000) between 1960 and 1965, 66,000 would be in terms of males and 81,000 females; for the 1965-to-1970 period, the projected increase drops to 94,000, of which 56,000 would be males and 38,000 females.

The Boston SMSA accounted for 50.6 percent of the Massachusetts labor force in 1960. If it be assumed that approximately half of the increases in the two five-year periods will occur in the Boston Area and that they will be divided between males and females in the same proportions as the over-all increases for the State, the projections for the Boston Area would be about as follows:

Table 7

LABOR FORCE PROJECTIONS TO 1970, BY SEX
BOSTON SMSA

Year	Total Labor Force		Males		Females	
	Number	Percent of total	Number	Percent of total labor force	Number	Percent of total labor force
1960	1,079,000	100.0	695,000	64.4	384,000	35.6
1965	1,153,000	100.0	728,000	63.1	425,000	36.9
1970	1,200,000	100.0	756,000	63.0	444,000	37.0

[1] **Manpower Report of the President and a Report on Manpower Requirements, Resources, Utilization, and Training by the U. S. Department of Labor Transmitted to the Congress March, 1964** (Washington: U. S. Government Printing Office), p. 245.

Table 8

EMPLOYED PERSONS[a] CLASSIFIED BY MAJOR OCCUPATIONAL GROUPS, 1960 AND 1950 BOSTON SMSA (in thousands)

Major Occupational Group	1960	1950	Percent of total 1960	Percent of total 1950	Percent change
Totals	1023.8	914.7	100.0	100.0	11.9
Professional, technical and kindred	149.8	110.5	14.6	12.1	35.6
Managers, officials and proprietors	85.2	88.4	8.3	9.7	—3.6
Clerical and kindred workers	191.2	163.9	18.7	17.9	16.7
Sales workers	82.2	79.1	8.0	8.6	3.9
Craftsmen, foremen and kindred workers	134.4	136.2	13.1	14.9	—1.3
Operatives and kindred workers	169.4	177.1	16.5	19.4	—4.3
Service workers, except private household	91.1	86.2	8.9	9.4	5.7
Laborers, except farm and mine	34.6	43.4	3.4	4.7	—20.3
Private household workers	15.1	17.1	1.5	1.9	—11.7
Occupation not reported[b]	67.8	8.4	6.6	.9	707.1
Farm laborers and foremen	1.8	2.5	.2	.3	—28.0
Farmers and farm managers	1.2	1.7	.1	.2	—29.4

[a] Includes self-employed.
[b] The sizable increase in the item "occupation not reported" is attributable to a change in the method of processing the census data with respect to occupation.

Sources: Department of Commerce, Bureau of the Census, U. S. Census of Population: 1950. Vol. II, Characteristics of the Population, Part 21, Massachusetts (Washington: U. S. Government Printing Office), p. 73. U. S. Census of Population: 1960. General Social and Economic Characteristics, Massachusetts. Series PC (1), 23c, p. 187.

On the basis of the Labor Department's projections for the State and the assumption that the projections should be applied proportionately to the Boston Area, it will be noted that women should represent about 37 percent of the Area's labor force in 1970, as compared with 35.6 percent in 1960.

5. Occupational Distribution

In the table to the left, the occupational distribution of employed men and women residing in the Boston SMSA in 1960 as tabulated in the U. S. Census is compared with the corresponding data for 1950.

It will be observed that the Area's employed residents numbered 1,023,800 in 1960—an increase of 109,100 over the 914,700 such employed individuals tallied in 1950. In part, this increase is attributable to the fact that ten of the peripheral towns were added to the Standard Metropolitan Statistical Area in 1960. The total population of these ten towns in 1960 was 86,703. Labor-force data available for the four largest of these (accounting for 53,300 of the total of 86,703) indicate that 36.4 percent were in the labor force with most of them employed during the census period. In part also, the increase in the number at work reflects the reduction of 15,000 in the number unemployed in the SMSA between 1950 and 1960.

The comparison by occupations is also affected by the increase in the number of workers whose occupation could not be identified by the Census Bureau on the basis of the replies to its questionnaires. There were 67,800 in this category in the 1960 Census as compared with only 8,400 in that for 1950.

With these qualifications in mind, it is possible to observe from the tabulation of the major occupational groups in which the more important increases and decreases occurred over the decade between the two censuses.

Major Occupational Group	Change: 1950 to 1960 Increase	Decrease	Percent Change
Professional, technical and kindred workers	39,300		35.6
Clerical and kindred workers	27,300		16.7
Operatives and kindred workers		7,700	—4.3
Laborers, except farm and mine		8,800	—20.3

The shift in emphasis from the lower-skilled jobs to the clerical and sales and the professional and kindred occupations is highlighted by the changes listed above.

The sharp increase in the number of workers engaged in professional and kindred occupations is largely attributable to the sizable expansion in the electrical-electronics industry and related research and development which has been the outstanding feature of the Area's progress over the past two decades.

Of the 39,300 professional and kindred workers added to the Area's total in that group between 1950 and 1960, the following industries accounted for the largest numbers.

Electrical-electronics manufacturing	8,378
Legal, engineering and other professional services[1]	6,479
Educational services, private	7,353
Educational services, government	6,724
Total	28,934

As compared with residents of other Massachusetts areas, the Boston SMSA's workers show lower percentages in the unskilled, semiskilled, and skilled occupations,[2] and substantially higher proportions in the clerical and sales and the professional, technical and kindred workers categories.

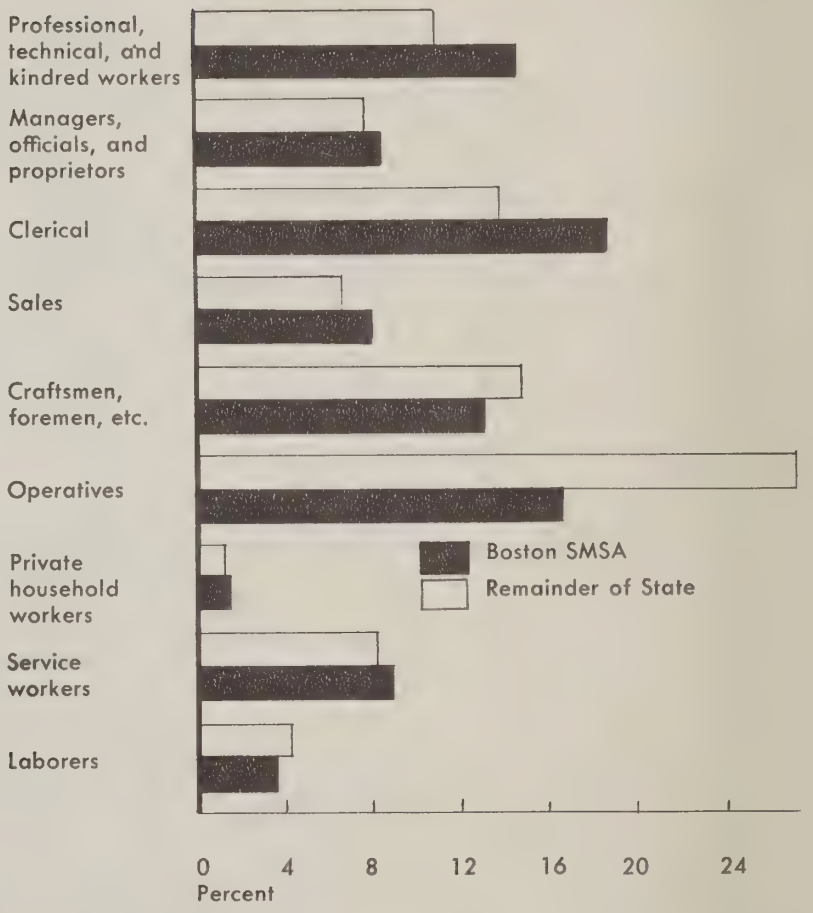
These contrasts are reflections of the predominance here of non-manufacturing industries (trade, service, finance, insurance, etc.) as well as of the concentration, particularly along Route 128, of electrical-electronics plants and related research and development organizations, which employ so many professional workers and technicians.

1 Includes research and development organizations.

2 Classified in the U. S. Census publications as "craftsmen, foremen, and kindred workers" and "operatives and kindred workers".

Figure 5

PERCENT DISTRIBUTION OF EMPLOYED RESIDENTS,[a] 1960 BY MAJOR OCCUPATIONAL GROUPS BOSTON SMSA AND REMAINDER OF STATE[b]



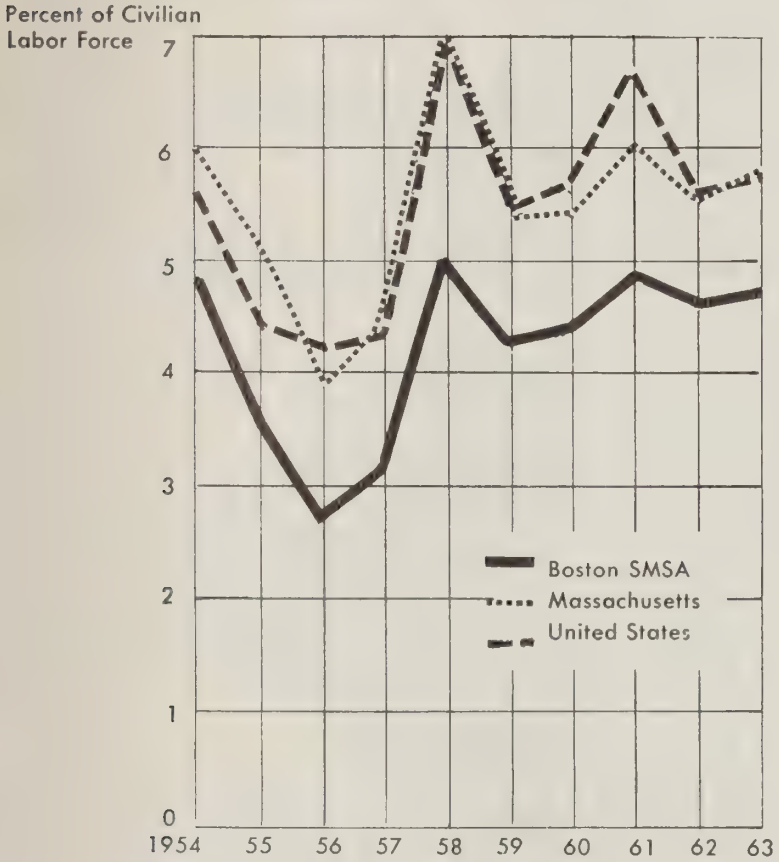
a Includes self-employed.

b Calculated from: Department of Commerce, Bureau of the Census, U. S. Census of Population: 1960. General Social and Economic Characteristics, Massachusetts (Washington: U. S. Government Printing Office), Series PC(1), 23C, pp. 137, 187.

Figure 6

AVERAGE ANNUAL UNEMPLOYMENT RATES*

1954 THROUGH 1963,
BOSTON SMSA, MASSACHUSETTS, AND UNITED STATES



* Total unemployment as percent of civilian labor force.

Source: **Manpower Report of the President and a Report on Manpower Resources, Utilization, and Training by the U. S. Department of Labor**, transmitted to the Congress, March 1964 (Washington: U. S. Government Printing Office). United States rates, p195, Massachusetts and Boston SMSA rates: 1957-1963, pp. 234, 237. Massachusetts and Boston SMSA rates: 1954-1956, Unpublished information obtained directly from the Division of Employment Security.

D. UNEMPLOYMENT RATES IN THE BOSTON SMSA YEARS 1954 THROUGH 1963

The sustaining effect of the Area's nonmanufacturing industries during periods of wide swings in industrial production is reflected in the relatively low unemployment rates shown in the accompanying chart.

Since 1953, rates for the Boston Standard Metropolitan Area have remained consistently below national averages.

Because the Boston SMSA comprises half the civilian labor force of the Commonwealth, the relatively more stable situation in the Boston Area partly offsets the higher unemployment in other areas of the State (where manufacturing is more important) and thus produces a lower average for the State as a whole. Notwithstanding this situation, however, it will be observed that the average rate for Massachusetts mounted to 7.0 percent of the civilian labor force in the year 1958 when the durable-goods industries were hard hit, with the annual rate for the Boston Metropolitan Area reaching 5.0 percent in that year.

While the average unemployment rate for Massachusetts for 1963 was slightly above the national average (5.8 vs 5.7), the corresponding rate for Boston was only 4.7 percent.

1. Lack of Education as a Factor in Unemployment

In an article appearing in the **Monthly Labor Review**, May, 1963, the educational attainment of workers in March, 1962 was compared with that for selected prior years,[1] and unemployment rates in March, 1962 were compared on the basis of years of school completed by the worker. Among the findings were the following: (See Table 9).

[1] This article was based on information derived from supplementary questions in the March 1962 monthly survey of the labor force, conducted for the Bureau of Labor Statistics by the Bureau of the Census through its Current Population Survey.

Table 9

UNEMPLOYMENT RATES, MARCH 1962
(Percent of Civilian Labor Force)
BY YEARS OF SCHOOL COMPLETED
UNITED STATES

Years of school completed	Age Group 18 - 24 years	25 - 54 years
Elementary school:		
less than 8 years*	20.4	8.8
8 years	19.5	7.5
High school:		
1 - 3 years	17.6	7.1
4 years	9.8	3.9
College:		
1 year or more	5.5	2.2

*Includes persons reporting no school years completed.

It will be observed that unemployment rates vary inversely with the educational attainment of the worker.

While similar data on unemployment rates by educational attainment of jobless individuals are not available for the Boston SMSA or for Massachusetts as a whole, the conclusions drawn from the foregoing national rates are equally applicable here.[1]

"The higher educational attainment of American workers in March 1962 reflects a remarkable response to the demands of our economy for workers possessing higher levels of skill and education. However, current changes in the occupational structure of the economy, together with present trends in employment and income, portend an accelerated demand for highly trained workers in the future and a continued reduction in the demand for workers with little education. But educational advances alone cannot guarantee jobs. The rapid rise in the number of younger workers which can be anticipated in the next decade poses an unprecendented challenge to the Nation's ability to match a growing number of job seekers with a corresponding increase in jobs. Since the greatest increase in employment opportunities can be expected to occur in occupations requiring high levels of skill and education, this challenge can be partly met by bringing the levels of training and education of America's present and future workers into line with the needs of the economy."

[1] Ibid p. 515.

E. DEMAND AND SUPPLY IN THE OCCUPATIONS SELECTED FOR SURVEY

In the tables that follow the estimated needs for expansion and replacement to June 1964 and June 1966 are discussed under the major groupings in which the selected occupations are classified:

Semiprofessional occupations
Clerical and sales occupations
Skilled occupations
Semiskilled occupations
Service occupations

The output of **formal company training programs** has been applied against the individual establishments' gross requirements for expansion. Only needs in the specific occupation to be met from outside sources are included in the figure for net demand.

1. Training Output of Public and Private Schools

For many of the occupations surveyed, the major source of supply — particularly at entry levels — is the output of public and private schools located in the Boston Standard Metropolitan Statistical Area. Information on the number of June 1963 graduates of such schools (for training in occupations related to the survey) was obtained from such schools — as listed in Appendix A —, who also furnished estimates of the number expected to be trained in the year ending in June 1964. These data are listed by occupations in the tables which follow.

It is recognized, of course, that some graduates will have shifted their vocational objectives, perhaps to continue their education. Among the female graduates will be many who will early withdraw from the labor force for marital reasons and will, therefore, not represent a source of supply for the Area even at the entry level.

Another limiting factor, so far as the use of the "school output" data is concerned lies in the employer specifications for filling the jobs which his expansion needs may require. For many of them, previous experience is listed as a "must" and the trainee without it is not acceptable.

For these reasons, the figures furnished by the schools who cooperated in the survey have been shown only as a **source** of supply and in a separate table from the demands in the respective occupations, as indicated by responding employers. Since the schools were not requested to estimate the number of graduates beyond June 1964, no data are available as to this source of supply for the two years ending in June 1966. It would seem that present capacity should ensure an output from public and private schools at least equal to that shown for the years ending in June 1963 and 1964, and that the continuing pressure from young people expecting to enter the labor force might result in some increase in **demand for**

training. However, it would also appear that a persistent falling-off in opportunities in a given occupation (due to automation, defense cutbacks, technological changes, etc.) would eventually be reflected in curtailment of training for that occupation.

2. Output of Manpower Development and Training Courses

Estimates of the numbers of persons expected to complete training under the Manpower Development and Training Act of 1962 in the two years ending in June 1964 were based upon reports prepared by the Massachusetts Division of Employment Security. Later reports, following completion of certain courses, indicate some differences between estimated output and the number actually completing the course. On the other hand, many of the trainees dropping out of such courses prior to completion are known to have found work in course-related jobs.

Since MDTA courses are being set up in response to estimated current needs, it may be expected that the output of such courses will be more responsive to fluctuations in demand than would be true in the case of the longer-established public and private schools.

3. Inventory of Unemployed Applicants in November 1963

As an indication of available supply, the Boston Area employment offices of the Massachusetts Division of Employment Security were requested to report, for each of the selected occupations in the survey, the number of unemployed individuals represented in their active application files in November 1963. The results of this inventory are shown in Tables 12, 16, 20, 24 and 28.

It will be realized that distances between locations in the Boston Metropolitan Statistical Area may preclude the matching of openings in an occupation at one location and unemployed qualified applicants in another. Other factors entering into the problem of matching jobs with applicants include those connected with wage rates, hours of work, seniority rights of temporarily displaced workers, and employer specifications limiting referral.

4. Employer Opinions as to the Ease or Difficulty of Filling Jobs

The opinions furnished by responding employers concerning the recruitment situation with respect to a listed occupation in which they employed one or more individuals are summarized in Tables 12, 16, 20, 24 and 28.

It will be observed that the respondents who gave an opinion were well divided, with many regarding jobs as "hard to fill" while others considered it "easy to fill" and that a sizable number of the respondents had no opinion on the subject.

The various surrounding circumstances must, of course, be borne in mind. They include such factors as wage rates, hours, ease of commuting, fringe benefits, and — at times — the "prestige status" of the firm as a desirable employer.

5. The Demand Represented by the Need to Replace Labor-Force Dropouts

A very sizable proportion of the net demand envisioned in many of the occupations surveyed was represented by the need to replace workers who would be leaving the labor force during the three-year period.

Most of the men expected to drop out of the work force would be retirees, and moderate needs for such replacements were indicated for some of the occupations in which only males are employed.

In the case of jobs in which both sexes are employed, and particularly among those which are almost exclusively women's occupations, needs for replacement of labor-force drop-outs were substantial— exceeding, in some cases, the expansion demand.

Of the women in the labor force of the Boston SMSA in 1960 (see Table 5) married women with spouse present accounted for 42 percent. Many of these working wives move in and out of the labor force as their home obligations permit or require, thus creating a sizable replacement demand when they leave the labor force. As in the case of the males, there is also a sizable demand arising from the retirement of female workers.

In this survey no account has been taken of the **supply** of women workers returning to the labor force and resuming their occupations when a lessening of family demands permits them to do so. Available data would indicate that they constitute a very sizable offset to the replacement needs created by dropouts in certain occupations.

6. The Inflation Factors

Inflation factors are the multipliers by which data obtained from respondents are blown up to obtain estimates of the universe. These multipliers are based upon the ratio of total employees in the firms of the sample in each two-digit industry to the total in the universe in that industry. (In a few instances, two or more closely related industries were combined.)

In strata containing the larger firms, the ratio of sample employment to total employment was high, and the blow-up facters were correspondingly small. However, in strata containing the smaller firms, the ratio of sample to total employment was small, and the blow-up factors were consequently large.

Where the inflation factors are large (as with the small firms), small errors become correspondingly large. The problem is more than one of sampling; it is also one of measurement, augmented, of course, by sampling problems. For this reason, we have shown in certain of the tables, breakdowns of data by size-of-inflation factors. The breakdowns show the origins of the totals, so that the reader may temper his conclusions accordingly if the possibility of distortion in the figures appears large.

F. THE SELECTED SEMIPROFESSIONAL OCCUPATIONS

Among the semiprofessional occupations selected for survey were six major categories:

Commercial airplane pilots	Licensed practical nurses
Draftsmen (of all types)	Electronic technicians
Laboratory assistants (of all types)	Medical record technicians

Commercial airplane pilot—0-41.10

The occupation of **commercial airplane pilot** was included in the survey list because it was understood to be declining, possibly due to the introduction of larger and faster planes. This understanding appears to be confirmed by the survey findings. All four of the respondent airlines were finding vacancies easy to fill.

As of June 1963, 461 were estimated to have been employed in the SMSA and it was anticipated that 89 fewer would be needed in 1964 and 65 fewer in 1966.

Only four pilots were registered for work with the employment offices of the Massachusetts Division of Employment Security in November 1963.

In view of the litigation pending with respect to the Florida run, the outlook for the occupation in the Boston SMSA is uncertain.

Draftsmen—0-48.01 through 0-48.51

The nearly 7200 **draftsmen** estimated to have been employed in the Area at mid-June 1963 were divided among various specialized fields. Nearly 60 percent of them were mechanical draftsmen; electrical and architectural draftsmen each accounted for about 12 percent of the total; over seven percent were in the structural category. Only in the architectural field was a surplus anticipated over the three-year period ahead.

As of November 1963, there were 291 unemployed draftsmen of various types represented in the active application files of the Massachusetts Division of Employment Security's employment offices serving the Boston SMSA. Cutbacks since November 1963, mainly in the electronics industry, were reported to have brought about a sizable decrease in orders from draftsmen and a corresponding increase in applications from unemployed workers in the occupation.

Some 546 students had completed training courses for draftsmen in the year ending June 30, 1963, and another 635 were expected to be graduated in the following school year.

New duplicating techniques are said to be eliminating much of the need for tracers, an occupation for which junior draftsmen had previously been hired.

Draftsmen required to meet needs for expansion and for replacement of labor-force dropouts (retirees, etc.) were estimated to number 758—for all types—by June 1964, and 1665 by June 1966. Most of these were in the electrical and mechanical categories.

Of the total needs for draftsmen to mid-June 1966 (1,665), one in five would be required to replace men leaving the labor force, while the rest would represent additions to staffs.

Notwithstanding the fact that the draftsmen's occupation was selected for inclusion in the Survey because of reputed shortages of qualified applicants, a majority of the responding employers considered positions therein easy to fill.

Medical record technician

Demand for **medical record technicians** was high in relation to the estimated 469 persons already employed in this occupation in June 1963. The Survey indicated needs for 68 more by June 1964 and 180 by mid-June 1966. Of these, 37 and 96, respectively, represented replacements of labor-force dropouts.

This occupation is not listed in the Dictionary of Occupational Titles. (Note that the **medical technician/technologist** occupation is discussed under "laboratory assistants" below.) The job duties of the medical record technician for purposes of the Survey questionnaires were described as follows:

> "Assists medical records librarian in sorting and classifying medical records, case histories and reports for filing and reference. Types and files index cards with locations and description of medical records and reports. Uses shorthand to transcribe notes and information from librarian. Locates records and transcribes information from records upon request."

Of the 41 respondents who reported employees in this occupation 27 considered the position hard to fill. None of the private or public schools who furnished information on output of graduates was conducting training for "medical record technicians."

Laboratory assistants—0-50.01 through 0-50.93

While the number of **laboratory assistants** working in the Area is moderate in relation to the numbers employed in many other occupations, shortages in these categories, particularly in the hospitals, have been acute and troublesome. Reports of respondents resulted in the following estimates of the numbers at work at mid-June 1963.

(Text continued on page 24)

TABLE 10

SELECTED SEMIPROFESSIONAL OCCUPATIONS SURVEYED

Estimated employment mid-June 1963, and estimated demands[a] for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1964 and mid-June 1963 to mid-June 1966 with[b] distributions of estimates by size of inflation factors

DOT code	Job title	Estimated employment mid-June 1963				Estimated demand for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1964				Estimated demand for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1966			
			Distribution of estimates by size of inflation factors				Distribution of estimates by size of inflation factors				Distribution of estimates by size of inflation factors		
		Total	Less than 2.1	2.1 to 100.0	Over 100.0	Total	Less than 2.1	2.1 to 100.0	Over 100.0	Total	Less than 2.1	2.1 to 100.0	Over 100.0
0.41.10	Airplane pilot commercial	461	461	-	-	-89	-89	-	-	-65	-65	-	-
	Total draftsmen	7,193	3,443	2,826	924	758	317	441	-	1,665	864	669	132
0-48.05	Draftsmen, architectural	832	57	775	-	-32	6	-38	-	-17	21	-38	-
0-48.06	Draftsmen, commercial	187	93	94	-	37	19	18	-	60	42	18	-
0-48.11	Draftsmen, electrical	850	692	158	-	293	136	157	-	563	284	279	-
0-48.18	Draftsmen, mechanical	4,237	1,952	1,361	924	367	93	274	-	872	330	410	132
0-48.25	Draftsmen, structural	549	309	240	-	23	23	-	-	78	78	-	-
0-48.30	Draftsmen, radio	53	-	53	-	30	-	30	-	30	30	-	-
0-48	Draftsmen, other types[c]	269	124	145	-	12	12	-	-	46	46	-	-
0-48	Draftsmen, type not specified	216	216	-	-	28	28	-	-	33	33	-	-
[d]	Medical record technician	469	235	234	-	68	26	42	-	180	95	85	-
0-50.01	Medical technologist/ technician	1,661	1,299	362	-	240	176	64	-	589	461	128	-
0-50.21	Laboratory assistant (chemistry, physics; schools and universities)	329	329	-	-	38	38	-	-	299	299	-	-
0-50.22	Chemist, assistant	2,584	1,253	1,331	-	90	86	4	-	591	214	377	-
0-50	Other types of laboratory assistants[c]	363	300	63	-	36	36	-	-	107	85	22	-
0-52.83	Licensed practical nurse	6,153	2,338	3,815	-	1,499	900	599	-	3,094	1,915	1,179	-
0-67.11) 5-83.444)	Electronics technician/ mechanic[e]	2,895	2,492	403	-	608	409	199	-	1,447	1,111	336	-

[a] After deduction of output from formal company training programs.

[b] Inflation factors are the multipliers by which the survey results are blown up to obtain estimates of the universe. The multipliers are based upon the ratio of employees in the sample in each industry to the total in the universe in that industry. In instances in which the apparent demand results from large inflation factors, results are correspondingly unstable.

[c] Combines data on several types for which estimated June 1963 employment was less than 100 or estimated demand was less than 10.

[d] No DOT code available for this occupation.

[e] At the time this survey was initiated, electronics technicians and electronics mechanics were classed in the same occupation.

TABLE 11

SELECTED SEMIPROFESSIONAL OCCUPATIONS SURVEYED

Breakdown of estimated demands[a] for expansion and replacement of labor-force dropouts to mid-June 1964 and mid-June 1966

Estimated demands for expansion and replacement of labor-force dropouts		Estimated demands for expansion		Estimated demands for replacement of labor-force dropouts		Job title	DOT code
Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966	Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966	Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966		
-89	-65	-90	-90	1	25	Airplane pilot, commercial	0-41.10
758	1,665	590	1,330	168	335	Total draftsmen	
-32	-17	-34	-26	2	9	Draftsmen, architectural	0-48.05
37	60	31	41	6	19	Draftsmen, commercial	0-48.06
293	563	236	470	57	93	Draftsmen, electrical	0-48.11
367	872	276	685	91	187	Draftsmen, mechanical	0-48.18
23	78	18	64	5	14	Draftsmen, structural	0-48.25
30	30	30	30	-	-	Draftsmen, radio	0-48.30
12	46	9	42	3	4	Draftsmen, other types[b]	0-48
28	33	24	24	4	9	Draftsmen, type not specified	0-48
68	180	31	84	37	96	Medical record technician	c
240	589	117	305	123	284	Medical technologist/ technician	0-50.01
38	299	38	299	-	-	Laboratory assistant (chemistry, physics; schools and universities)	0-50.21
90	591	57	425	33	166	Chemist, assistant	0-50.22
36	107	20	61	16	46	Other types of laboratory assistants[b]	0-50
1,499	3,094	753	1,184	746	1,910	Licensed practical nurse	0-52.83
608	1,447	509	1,183	99	264	Electronics technician/ mechanic[d]	0-67.11) 5-83.444)

[a] After deduction of output from formal company training programs.

[b] Combines data on several types for which estimated June 1963 employment was less than 100 or estimated demand was less than 10.

[c] No DOT code available for this occupation.

[d] At the time this survey was initiated, electronics technicians and electronics mechanics were classed in the same occupation.

TABLE 12

SELECTED SEMIPROFESSIONAL OCCUPATIONS SURVEYED

Unemployed individuals registered in active files of local employment offices of Massachusetts Division of Employment Security November 22, 1963, and distribution of respondents reporting employees in the respective occupation by numbers indicating vacancies as "hard to fill" and "easy to fill"

DOT code	Job title	Number of unemployed registrants November 22, 1963[a]	Respondents reporting employees in the occupation		
			Total number[b]	Number reporting "hard to fill"	Number reporting "easy to fill"
0-41.10	Airplane pilot, commercial	5	4	0	4
	Total draftsmen	291	[c]	[c]	[c]
0-48.05	Draftsmen, architectural	38	14	2	9
0-48.06	Draftsmen, commercial	-	22	8	12
0-48.11	Draftsmen, electrical	38	39	15	20
0-48.18	Draftsmen, mechanical	78	120	49	54
0-48.25	Draftsmen, structural	14	10	5	4
0-48.30	Draftsmen, radio	-	1	0	1
0-48	Draftsmen, other types[d]	123	22	3	14
0-48	Draftsmen, type not specified	0	3	1	2
[e]	Medical record technician		41	27	14
0-50.01	Medical technologist/ technician	20	58	41	16
0-50.21	Laboratory assistant (chemistry, physics; schools and universities)	6	11	1	10
0-50.22	Chemist, assistant	43	85	32	44
0-50	Other types of laboratory assistants[d]	65	22	11	8
0-52.83	Licensed practical nurse	141	51	29	20
0-67.11, 5-83.444	Electronics technician/ mechanic[f]	276	56	23	25

[a] Note that these figures were obtained in November 1963, approximately five months after the June employment figures.

[b] "Total respondents" includes those expressing no opinion as well as those reporting "hard to fill" and "easy to fill".

[c] Figures could not be added because of duplications.

[d] Combines data on several types for which estimated June 1963 employment was less than 100 or estimated demand was less than 10.

[e] No DOT code available for this occupation.

[f] At the time this survey was initiated, electronics technicians and electronics mechanics were classed in the same occupation.

TABLE 13

SEMIPROFESSIONAL OCCUPATIONS SURVEYED

School output in June 1963 and anticipated school output in June 1964[a]

DOT code	Job title	Private and public schools combined			Private schools			Public schools			MDTA courses[b]		
		Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964	Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964	Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964	Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964
0-48	Draftsmen	1,181	546	635	878	398	480	303	148	155	-	-	-
0-50.01	Medical technologist/ technician	96	39	57	96	39	57	-	-	-	-	-	-
0-50.22	Chemist assistant	55	25	30	55	25	30	-	-	-	-	-	-
0-50	Other types of laboratory assistants[c]	96	45	51	96	45	51	-	-	-	-	-	-
0-52.83	Licensed practical nurse	432	203	229	432	203	229	-	-	-	-	-	-
0-67.11) 5-83.444)	Electronics technician/ mechanic[d]	2,746	1,226	1,520	2,375	1,083	1,292	371	143	228	98	-	98

[a] Exclusive of output from formal company training programs. Figures from these programs already subtracted from expansion and replacement demand. Trainee output from private and public schools not distributed over certain occupations because it is impossible to forecast the exact job distribution of trainees.

[b] Although MDTA output is shown, it is not combined with output from private and public schools because MDTA courses do not necessarily continue, whereas the output from regular schools reflects ongoing programs. Actual output from MDTA courses may vary somewhat from these estimates, which were based on 1963 experience.

[c] Combines data on several types for which estimated June 1963 employment was less than 100 or estimated demand was less than 10.

[d] At the time this survey was initiated, electronics technicians and electronics mechanics were classed in the same occupation.

Assistant chemist	2584
Medical technologist/technician	1661
Laboratory assistant (chemistry, physics — school and universities)	329

It will be observed from Table 10 that more than half of the estimate for employment in the **assistant chemist** category is based upon inflation factors between 2.1 and 100.0; accordingly, the actual figure may fall within a rather wide range either side of the estimate. While the figure for expansion needs to June 1964 (at 90) is relatively low, estimated needs to June 1966 (largely based upon the same relatively high inflation factors) are shown at 591, almost 25 percent of the June 1963 employment figure.

None of the public schools cooperating in the survey was training students for this field of work. The two private schools listing courses for chemical assistants reported 25 graduates in 1963 and expected 30 in 1964.

Of the 85 employers who furnished data on the chemist assistant occupation, 32 considered it difficult to fill and 44 found recruitment easy; the remaining eight expressed no opinion.

The Survey tabulations indicated that an estimated 1661 individuals were employed as **medical technician/technologists** at mid-June 1963. Needs for expansion and replacement of labor-force dropouts to June 1964 and June 1966 aggregated 240 and 589, respectively. Replacement requirements to June 1964 were estimated at 123; by June 1966, a total of 284 would be needed for this purpose. In 1963, private schools furnishing information for the Survey had graduated 39 students trained in this occupation; they expected to turn out another 57 in 1964. No courses in public schools were reported.

In addition to the 329 **assistants** already employed in their **chemistry and physics laboratories** at June 1963, reports of the responding colleges and universities indicated that some 38 more would be required by June 1964 and 299 by the end of the three-year period. These estimates represent expansion needs exclusively. Applications of six unemployed persons in this occupation were on file with the Division of Employment Security's employment offices in the Boston SMSA in November 1963. Of the 11 institutions reporting employment in this occupation, only one considered vacancies as "hard to fill."

Licensed practical nurse—0-52.83

Shortages in this occupation have existed over a number of years, despite efforts of training facilities in the SMSA to alleviate the situation. They have been aggravated by the rapid expansion in hospital facilities and nursing homes.

As inflated under the Survey procedures, data furnished by respondents indicated that 6,153 persons were employed in this occupation in the Area in June 1963, that 1,500 more would be needed by June 1964 (753 for expansion of staffs and 746 to replace women withdrawing from the labor force), and that needs to June 1966 would rise to 3,094 (of which 1,184 would be for staff additions and 1,910 for replacement of labor-force dropouts).

Despite the over-all shortage in this occupation, there were 141 unemployed licensed practical nurses registered for work in the Area's local employment offices of the Massachusetts Division of Employment Security in November 1963. In explanation, it was suggested that many of these women are idle because they have never passed the State examination and have been given waivers to permit them to practice without examination. However, such persons are not acceptable to most of the hospitals, which—as a matter of policy—will not hire applicants who have not passed the required examination.

Of the 51 respondent employers who listed this occupation, 29 regarded vacancies as difficult to fill, while 20 checked it as "easy to fill."

The private schools which furnished information for the Survey reported 203 graduates in 1963 and expected to turn out 229 in 1964. Several courses are in progress in the Area under the Manpower Development and Training Act, but none of these will have been completed by June 1964.

Electronics technician—0-67.11

Electronics mechanic—5-83.444

At the time the Survey was organized, the occupation "electronics technician" embodied the duties which were later split between these two occupations. The "job description" which accompanied the questionnaire was therefore inclusive of both occupations, and the estimates appearing in the tables are based upon the combined data as reported by respondents. Thus, the occupation as it appears in the Survey covers a wide span of duties ranging from the skilled or semiskilled to the semiprofessional or (in some instances) to the professional level.

Employment at June 1963 was estimated at 2,895. Needs for expansion and replacement to June 1966 totaled 1,447 workers, of whom 608 would be required by June 1964. Of the 1,447 to be needed by June 1966, 1,183 would be for added jobs and 264 for replacement of individuals withdrawing from the labor force. Requirements to June 1964 would include 509 for expansion and 99 for replacement of dropouts from the labor force.

However, in interpreting the data appearing in the tables, it should be borne in mind that there has been a drastic change in the demand-supply situation in the occupation since the respondents' questionnaires were completed in the late summer and fall of 1963. Layoffs in some sectors of the electronics industry have resulted in an increase in the number of unemployed electronics technicians and mechanics. They have also been reflected in a drop in the number of openings for such workers.

A further factor affecting the demand for electronics technicians and mechanics lies in continuing technological advances. Simplification of units and reductions in the size of assemblies have made it possible for females with excellent manual dexterity to take over tasks which previously had to be performed by a technician.

At the time their questionnaires were completed, 23 of the 56 respondents who had employees in this occupation regarded it as one in which vacancies were hard to fill, 25 others considered such vacancies easy to fill, while eight expressed no opinion.

Because of the rapid rise in the electronics industry—prior to the recent leveling-off—training courses for technicians in this field have been extremely popular in both private and public schools; training was also set up under the Manpower Development and Training Act of 1962. In the year ending at mid-June 1963, 1,226 students had been graduated by the public and private schools furnishing information for the Survey. In the following school year, they expected to turn out 1,618 more, while the number who would complete training under the MDTA prior to July 1964 was estimated at 98. In addition, there were two other MDTA courses for electronics mechanics under way at the date of this report, each with 20 trainees. One had been started in September 1963; the other, in February 1964.

Reports from local employment offices of the Massachusetts Division of Employment Security serving the Boston SMSA showed 276 unemployed individuals in this occupation registered for work in late November 1963. However, due to the subsequent layoffs mentioned above, it is probable that their number has increased substantially since November.

G. THE SELECTED CLERICAL AND SALES OCCUPATIONS

The occupations selected for survey from the long list of clerical and selling jobs found in the Boston SMSA included the following:

Bookkeepers, receiving clerks, shipping clerks and payroll clerks
Various types of office-machine operators
Secretaries, stenographers, and clerk-typists
Retail sales clerks and outside salesmen (canvassers)

Most of the above groups are common to all industries and were therefore printed on all six types of Part II of the questionnaire. Exceptions were proof-machine operators (banks) and retail sales clerks and outside salesmen (canvassers); these occupations were listed only on the Group V questionnaire, which was mailed to banks and to sales outlets and related establishments.

With respect to clerical occupations generally, it should be borne in mind that the situation is a fluid one, with considerable mobility between various types of clerical jobs (and in and out of the labor force.) It is also believed that some of the training reported as "clerical" falls short of being adequate for entry into certain of the more exacting clerical occupations.

Bookkeeper II, general—1-01.02

Employment in this occupation at mid-June 1963 was estimated at 16,561.

By June 1964, it was estimated that 1,661 more such bookkeepers would be needed. Of these, 611 would represent expansion of staffs and 1,050 would be need to fill jobs vacated by persons leaving the labor force.

Over the three-year forecast period (to mid-June 1966) total demand is estimated at 3,609, of which 1,177 represents new jobs, and 2,432 replacements of labor-force dropouts.

Returns from the public and private schools cooperating in the survey indicated that 1,040 students had been trained in bookkeeping in the year ending June 1963, and that an estimated 1,079 would complete such courses in the following year.

Of the 467 respondent firms listing this occupation, 416 expressed an opinion on the recruitment situation; 139 considered it hard to fill, while 277 regarded it as easy to fill. There were 224 persons classified as general bookkeepers among the unemployed individuals registered for work with the Division of Employment Security's local employment offices in November 1963.

Bookkeeping-machine operator—1-02.01

Returns for respondents employing workers in this occupation indicated a mixed situation. Between June 1963 and June 1964, the total number at work should decrease (from 4,191) by a net figure of 672. Replacement of labor-force dropouts could absorb 454 of these, leaving a net surplus of 218.

Over the three-year period to June 1966, the net reduction in the number employed—at 422—would be more than offset by the 681 required to fill jobs vacated by persons leaving the labor force. Installation of data-processing equipment will account for displacements of these operators, particularly at banks.

A few responding employers reported some output from intra-company formal training programs. (This estimated output has been deducted from expansion needs.) None of the reporting schools was training bookkeeping-machine operators.

Of the 248 respondents reporting employees in this occupation, 100 checked it as one in which vacancies were hard to fill; 118 considered the jobs easy to fill; the remaining thirty expressed no opinion.

There were 32 persons classified in this occupation among the applicants seeking work in November 1963 through the Division's employment offices located in the SMSA.

Comptometer operator—1-25.13

This was another occupation selected for survey because it was believed to be a declining one. Here again, survey results fail to corroborate prevailing opinion, although personnel requirements in this occupation are much more influenced by labor force dropouts than by expansion needs.

On the basis of respondents' reports employment at June 1963 was estimated at 2,112, with net needs of 229 to June 1964 and 601 to June 1966.

By far the larger proportion of the anticipated requirements was in terms of replacement for operators dropping out of the labor force. To meet this need, 172 persons would be required by June 1964 and 470 by June 1966. Married women returning to the labor force represent a sizable source of supply for this occupation. In addition to the numbers on payrolls throughout the year, there is an intermittent or seasonal demand for comptometer or calculating machine operators in connection with inventories, audits, etc.

In November 1963, there were 42 comptometer or calculating machine operators listed among the jobless applicants seeking work through the Division's employment offices located in the Boston SMSA. Of the 125 responding employers reporting workers in this occupation, 58 considered vacancies therein as hard to fill, 55 regarded them as easy to fill, and 12 expressed no opinion.

Output from courses for these operators in private schools in the 1962-63 academic year totaled 230; these schools expected to train another 297 in the 1963-64 school year. No courses in this occupation were listed by the public schools which furnished information for the Survey.

Key-punch operator—1-25.62

This occupation was included in the list on the understanding that it was one in which needs were declining. The Survey results do not entirely substantiate that impression.

Employment at mid-June 1963 was estimated at 3,068, with net needs approximating 474 to June 1964 and 983 to June 1966. Prospective net increases in the number employed accounted for 140 to June 1964 and 89 to June 1966 (after deduction of the output of formal company training programs). Thus, although there is an anticipated significant increase to mid-1964, the increase to 1966, two years later, is less, a fact which is in line with current popular opinion.

Because this is an occupation in which many married women are employed requirements for replacement of labor-force dropouts were substantial: an estimated 334 would be needed by June 1964 and 894 would be called for by June 1966 for this purpose. As in the case of other occupations heavily staffed by married women, returnees to the labor market represent an important source of supply.

Proof-machine operator (banks)—1-25.68

The growing use of data-processing equipment by banks has tended to reduce requirements for proof-machine operators. On the other hand, the continued expansion of banking units, with branches being set up in suburban locations and shopping centers, has created an offsetting need. The occupation was selected for survey on the theory that a net decline should be expected. This theory was confirmed by the Survey findings so far as the number of jobs in the occupation was concerned; estimated employment (at 1,430 in June 1963) was expected to decline by 147 by June 1964 and to recoup a part of this loss by June 1966, with the net decline to that date reduced to 59.

The gross needs for employees in this occupation are thus wholly in terms of replacements for workers dropping out of the labor force; 117 will be needed for this purpose by June 1964 and 297 by June 1966.

For the year ending mid-June 1964 a net surplus of 30 is indicated (147 minus 117); for the three-year period a net demand of 238 (297 minus 59) is shown.

In November 1963, there were 22 unemployed applicants registered for work in this occupation in the Division's local offices serving the SMSA. Of the 13 respondents employing proof-machine operators,

five checked it as one in which vacancies were "hard to fill"; the other eignt regarded recruitment as easy.

None of the reporting schools listed a course for proof-machine operators.

Payroll clerk—1-26.02

Net needs for expansion and replacement in this occupation were moderate as compared with some of the others in the clerical classification. It is probable that the increasing practice of "farming out" payroll processing to banks or to other organizations specializing in this work has affected demands in this occupation. The adoption of data-processing within an employing establishment would also affect needs for payroll clerks.

It was estimated that 4,245 persons were employed as payroll clerks in the Area in June 1963, and that 247 would be needed by June 1964 . . . 39 for added jobs and 208 to fill vacancies created by withdrawals from the labor market. Estimated requirements for the three-year period to mid-June 1966 totaled 839, of which 207 would represent staff expansion and 632, replacement of labor-force dropouts.

Of the 422 respondents who employed one or more payroll clerks, 108 considered the occupation as one in which vacancies were hard to fill; 267 considered recruitment easy; 47 had no opinion either way.

Reports from the schools did not include any courses leading to this specific occupation. However, as in the case of shipping clerks, it is probable that some of the "general clerical" trainees would be employed in this occupation at the entry level.

No payroll clerks appeared on the November 1963 list of applicants seeking jobs through the Division's employment offices serving the Area.

Receiving clerk—1-34.04

The estimate of the number of workers employed in this occupation in June of 1963 (7,994) was based on figures furnished by 339 responding firms. Of these, 32 considered the job as one in which vacancies were hard to fill; 272 were of the opinion that there was no scarcity.

Only 33 of the unemployed applicants registered in November 1963 with the Division of Employment Security's employment offices serving the Area were classified as "receiving clerks."

The Survey tabulations indicated an estimated demand for 1,391 workers in this occupation by mid-June 1964 of which 726 were needed to fill added jobs and 665 to replace men leaving the labor force.

Needs to mid-June 1966 were estimated at 2,493. Expansion of staffs would account for 1,481 and replacement of labor force dropouts, for 1,012.

Shipping clerk—1-34.14

On the basis of returns from 271 respondents, it was estimated that 8,066 shipping clerks were employed in the Area at mid-June 1963. Only 33 of them considered the occupation as one in which vacancies were hard to fill; 216 others reported it as easy to fill; the remainder (22) expressed no opinion.

Net needs to mid-June 1964 were estimated at 472, of which 59 represented new jobs and 413 replacements of persons leaving the labor force.

By mid-June 1966, it was estimated that 1,727 would be required—692 for staff expansion and 1,035 for filling vacancies occurring as workers dropped out of the labor force.

No training courses leading specifically to this occupation were reported by the responding schools, but it is possible that some of the male students completing the general "clerical" courses shown in Table 17 may find their way into this occupation.

Secretary—1-33.01

The estimated number of secretaries working in the Boston SMSA at mid-June 1963 was 20,783. (On the basis of the respondents' returns, it would appear that there were twice as many secretaries as there were stenographers employed in the SMSA at that date.)

Expansion and replacement demand in this occupation was estimated at 3,402 to June 1964 and 9,201 to June 1966. Of the number needed in the first year, 995 would be for staff additions and 2,407 for filling vacancies created by withdrawals from the labor force.

Over the three-year period ahead (where total needs were estimated at 9,201) some 2,711 workers would be for expansion and 6,490 for replacement of people leaving the labor force. This also is an occupation in which many married women are intermittently employed, and the situation with respect to labor-force dropouts is similar to that discussed below under "clerk typist."

Responding private schools reported that they had graduated 1,354 from secretarial courses in the year ending in June 1963 and that they expected the output for the following year to be 1,605. From the public schools, 593 had been graduated in the 1962-63 school year, and 807 were expected to complete their courses in the 1963-64 year. To fill vacancies in this category, many establishments follow the practice of up-grading competent stenographers, who thus represent an additional source of supply.

The application files of the Division of Employment Security's local employment offices in the SMSA contained 466 registrations from secretaries unemployed in November 1963. Some 487 of the 529 respondents reporting this occupation expressed an opinion as to whether it was easy or hard to fill vacancies therein; only 226 of them checked it as being hard to fill.

Stenographers—1-37.12

This occupation also shows a high ratio of needs for expansion and replacement versus estimated June 1963-employment. The number of stenographers at work in the Area at mid-June 1963 were estimated at 10,641. Some 2,484 persons would be needed in the following year, of which 870 would be for additions to staffs and 1,614 for filling posts left vacant by women leaving the labor force. In the three-year period ending in mid-June 1966, demands were estimated at 5,571—1,458 for expansion and 4,113 for replacement of labor-force dropouts.

Private schools reporting courses leading to this occupation had graduated 619 students in the 1962-63 school year and expected to turn out 721 in the next year. For public schools, the corresponding figures were 1,185 and 1,335 respectively. In addition, an estimated 13 trainees were expected to complete a MDTA course in the 1963-64 period.

Of the 340 respondents who employed stenographers, 174 checked the occupation as one in which vacancies were easy to fill, while 131 checked the hard to fill column.

The November-1963 inventory of unemployed workers with active applications on file with the Division's local employment offices serving the Boston Area included 347 stenographers.

As in the case of clerk-typists, married women returning to the labor force after having been absent for varying periods of time constitute an important source of supply for this occupation.

Clerk-typist—1-37.34

The next most important occupation, in terms both of numbers employed at mid-June 1963 and of expansion and replacement needs in the three-year period thereafter, was that of clerk-typist.

Requirements to June 1964 were estimated at 5,826 (1,727 for additional positions and 4,099 for replacement of withdrawals from the labor force). Over the three years ending in June 1966, needs should total 14,799 (3,408 to fill new jobs and 11,391 to replace persons leaving the labor force).

In this occupation are found many of the married women who move in and out of the labor force as their home obligations permit or require. It is probable that the sizable requirements for replacement of labor force dropouts indicated by the Survey data will be met largely by married women seeking work after absences of varying periods from the labor market, though many of them who have not had recent experience may require some retraining before they are readily employable as clerk-typists.

At the time the list of occupations to be surveyed was selected, the prevailing opinion was that openings for clerk-typists were substantially in excess of the available supply. However, the Division's local employment offices had 1,020 applications for work from unemployed clerk-typists on file in November 1963. Among these were some inexperienced recent school graduates, who would be acceptable to employers only at the entry level.

Only 104 of the 499 respondents reporting one or more clerk-typists on their payrolls at mid-June 1963 considered the occupation one in which vacancies were hard to fill.

The private schools which furnished information for the survey had graduated 155 clerk-typists in the school year ending in June 1963 and expected to turn out 225 in the following year.

For public schools, the corresponding figures were 2,145 and 2,387, respectively. These figures would be augmented by some portion of the output of courses described merely as "clerical" in the reports from other schools, both private and public, which—for lack of more specific information—has been shown as separate total on Table 17.

Outside salesman (canvasser)—1-55.40

The survey tabulations produced an estimate of 19,283 persons employed in this occupation in June 1963, of which only 2,267 were based upon inflation factors of less than 2.1. (See "The Inflation Factors," Page 18).

Estimated needs to mid-June 1964 totaled 1,393 of which 583 were required to fill additional jobs and 860, to replace persons leaving the labor force.

By mid-June 1966, demand would aggregate 4,214. Of these, 1,983 would be for staff expansion and 2,231, to fill vacancies created by withdrawals from the labor force.

In November 1963 there were only nine unemployed applicants for this type of work represented in the files of the Division's local employment offices serving the Area. Forty-five of the 77 establishments reporting employees in this occupation considered openings therein as hard to fill, while 29 regarded them as easy to fill.

Remuneration of this type of salesman is usually in the form of commissions, often with some form of guaranteed base pay during a brief "initiation" period, and sometimes with a guaranteed minimum

beyond that period. Uncertainty as to earnings is said to be one of the major deterrents to recruitment in this field of work.

None of the schools which furnished information for the Survey was conducting training courses for outside salesman. Most companies expose their trainee salesmen to a briefing before permitting them to begin canvassing the territory assigned to them; others train their salesmen by having them accompany an experienced man for a while before embarking "on their own."

Retail sales clerks—1-70.10

In terms of estimated numbers employed, the occupation of retail sales clerk was by far the most important among those surveyed in the clerical and sales fields. For these, estimated employment at June 1963 totaled nearly 50,000.

Because there are so many retail establishments employing only a few workers, a significant portion (10,426) of the estimate was based upon returns from small units, where inflation factors often exceeded 100.0.

Estimated needs to June 1964 aggregated 6,423. By June 1966, the survey tabulations indicate that 16,493 people will be required in this occupation.

Staff expansion to June 1964 should account for an estimated 2,889, while replacement of dropouts from the labor force prior to that date should require another 3,534.

Of the estimated needs to June 1966 (16,493), 8,120 will be for added jobs and 8,373 for replacement of labor force losses.

Seventy-six respondents supplied information with respect to retail sales clerks. Of these, only 22 regarded the occupation as one presenting recruitment difficulties and 46 considered vacancies therein as easy to fill. In November 1963, there were 766 unemployed persons classified in this occupation in the files of the employment offices of the Division of Employment Security located in the Boston SMSA. Some of these were probably interested principally in work during the Christmas selling season, which was getting under way in November.

Dental assistant—1-32.10

None of the respondents reported any employment in this occupation, which had been selected for survey because of reputed shortages.

It was listed on the printed questionnaire form for Group III industries, in which dental services were included.

This situation is probably due mainly to the fact that most dentists' offices employ fewer than four people, while the Survey sampling was limited to employers of four or more.

Information gathered concerning this occupation from one of the private schools indicated that 56 had been graduated from its dental assistant course in the 1962-63 school year and that 60 more were expected to complete the course in the following school year. Twenty more were expected to complete an MDTA course in this occupation in the 1963-64 year.

TABLE 14

SELECTED CLERICAL AND SALES OCCUPATIONS SURVEYED

Estimated employment mid-June 1963, and estimated demands[a] for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1964 and mid-June 1963 to mid-June 1966 with distributions of estimates by size of inflation factors[b]

DOT code	Job title	Estimated employment mid-June 1963				Estimated demand for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1964				Estimated demand for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1966			
		Total	Distribution of estimates by size of inflation factors			Total	Distribution of estimates by size of inflation factors			Total	Distribution of estimates by size of inflation factors		
			Less than 2.1	2.1 to 100.0	Over 100.0		Less than 2.1	2.1 to 100.0	Over 100.0		Less than 2.1	2.1 to 100.0	Over 100.0
1-01.02	Bookkeeper II, general	16,561	2,215	10,466	3,880	1,661	282	874	505	3,609	765	2,090	754
1-02.01	Bookkeeping machine operator	4,191	1,142	2,180	869	-218	-201	-17	-	259	-176	202	233
1-25.13	Comptometer operator	2,112	1,634	478	-	229	187	42	-	601	480	121	-
1-25.62	Key-punch operator	3,068	2,086	982	-	474	319	155	-	983	796	187	-
1-25.68	Proof-machine operator	1,430	1,059	371	-	-30	-29	-1	-	238	174	64	-
1-25	Office-machine operators other than types specified above	10,747	5,479	4,763	505	1,686	859	633	194	3,453	1,716	1,310	427
	Total	20,305	4,283	12,932	3,090	2,110	341	1,652	117	5,059	1,094	3,210	755
1-26.02	Payroll clerk	4,245	1,354	2,759	132	247	110	137	-	839	363	344	132
1-34.04	Receiving clerk	7,994	1,616	4,990	1,388	1,391	78	1,001	312	2,493	351	1,713	429
1-34.14	Shipping clerk	8,066	1,313	5,183	1,570	472	153	514	-195	1,727	380	1,153	194
1-33.01	Secretary	20,783	8,855	9,693	2,235	3,402	1,442	1,634	326	9,201	4,416	3,758	1,027
1-37.12	Stenographer	10,641	5,783	4,858	-	2,484	1,482	1,002	-	5,571	3,559	2,012	-
1-37.34	Clerk-typist	30,945	13,028	16,278	1,639	5,826	2,841	2,985	-	14,799	6,837	7,379	583
1-55.40	Outside salesman (canvasser)	19,283	2,267	11,065	5,951	1,393	64	630	699	4,214	140	1,895	2,179
1-70.10	Sales clerk (retail)	49,544	22,894	16,224	10,426	6,423	3,805	1,401	1,217	16,493	9,595	5,319	1,579
1-32.10	Dental assistant[c]												

[a] After deduction of output from formal company training programs.

[b] Inflation factors are the multipliers by which the survey results are blown up to obtain estimates of the universe. The multipliers are based upon the ratio of employees in the sample in each industry to the total in the universe in that industry. In instances in which the apparent demand results from large inflation factors, results are correspondingly unstable.

[c] See text, page 29.

TABLE 15

SELECTED CLERICAL AND SALES OCCUPATIONS SURVEYED

Breakdown of estimated demands[a] for expansion and replacement of labor-force dropouts to mid-June 1964 and mid-June 1966

Estimated demands for expansion and replacement of labor-force dropouts		Estimated demands for expansion		Estimated demands for replacement of labor-force dropouts		Job title	DOT code
Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966	Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966	Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966		
1,661	3,609	611	1,177	1,050	2,432	Bookkeeper II, general	1.01.02
-218	259	-672	-422	454	681	Bookkeeping machine operator	1.02.01
229	601	57	131	172	470	Comptometer operator	1-25.13
474	983	140	89	334	894	Key-punch operator	1-25.62
-30	238	-147	-59	117	297	Proof-machine operator	1-25.68
1,686	3,453	752	1,245	934	2,208	Office-machine operators other than types specified above	1-25
2,110	5,059	824	2,380	1,286	2,679	Total	
247	839	39	207	208	632	Payroll clerk	1-26.02
1,391	2,493	726	1,481	665	1,012	Receiving clerk	1-34.04
472	1,727	59	692	413	1,035	Shipping clerk	1-34.14
3,402	9,201	995	2,711	2,407	6,490	Secretary	1-33.01
2,484	5,571	870	1,458	1,614	4,113	Stenographer	1-37.12
5,826	14,799	1,727	3,408	4,099	11,391	Clerk-typist	1-37.34
1,393	4,214	533	1,983	860	2,231	Outside salesman (canvasser)	1-55.40
6,423	16,493	2,889	8,120	3,534	8,373	Sales clerk (retail)	1-70.10
						Dental assistant[b]	1-32.10

[a] After deduction of output from formal company training programs.

[b] See text, page 29.

Table 16

SELECTED CLERICAL AND SALES OCCUPATIONS SURVEYED

Unemployed individuals registered in active files of local employment offices of Massachusetts Division of Employment Security November 22, 1963 and distribution of respondents reporting employees in the respective occupation by numbers indicating vacancies as "hard to fill" and "easy to fill"

DOT code	Job title	Number of unemployed registrants November 22, 1963[a]	Respondents reporting employees in the occupation		
			Total number[b]	Number reporting "hard to fill"	Number reporting "easy to fill"
1-01.02	Bookkeeper II, general	224	467	139	277
1-02.01	Bookkeeping machine operator	32	248	100	118
1-25.13	Comptometer operator	42	125	58	55
1-25.62	Key-punch operator	149	228	88	117
1-25.68	Proof-machine operator	22	13	5	8
1-25	Office-machine operators other than types specified above	123	276	73	174
1-26.02	Payroll clerk	-	422	108	267
1-34.04	Receiving clerk	33	339	32	272
1-34.14	Shipping clerk	127	271	33	216
1-33.01	Secretary	466	529	226	261
1-37.12	Stenographer	347	340	131	174
1-37.34	Clerk-typist	1020	499	104	353
1-55.40	Outside salesman (canvasser)	9	77	45	29
1-70.10	Sales clerk (retail)	766	76	22	46
1-32.10	Dental assistant[c]				

[a] Note that these figures were obtained in November 1963, approximately five months after the June employment figures.

[b] "Total respondents" includes those expressing no opinion as well as those reporting "hard to fill" and "easy to fill".

[c] See text, page 29.

TABLE 17

SELECTED CLERICAL AND SALES OCCUPATIONS SURVEYED

School output in June 1963 and anticipated school output in June 1964[a]

DOT code	Job title	Private and public schools combined			Private schools			Public schools			MDTA courses[b]		
		Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964	Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964	Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964	Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964
1-01.02	Bookkeeper II, general	2119	1040	1079	144	70	74	1975	970	1005	-	-	-
1-25.13	Comptometer operator	527	230	297	527	230	297	-	-	-	-	-	-
1-25.62	Key-punch operator	837	399	438	837	399	438	-	-	-	-	-	-
1-25	Office-machine operators other than types specified above	1142	566	576	747	357	390	395	209	186	-	-	-
1-33.01	Secretary	4359	1947	2412	2959	1354	1605	1400	593	807	-	-	-
1-37.12	Stenographer	3860	1804	2056	1340	619	721	2520	1185	1335	13	-	13
1-37.34	Clerk-typist	4912	2300	2612	380	155	225	4532	2145	2387	212	-	212
	General clerical	3119	1497	1622	119	52	67	3000	1445	1555	-	-	-
1-70.10	Sales clerk (retail)	2566	1221	1345	-	-	-	2566	1221	1345	-	-	-
1-32.10	Dental assistant[c]	116	56	60	116	56	60	-	-	-	20	-	20

[a] Exclusive of output from formal company training programs. Figures from these programs already subtracted from expansion and replacement demand. Trainee output from private and public schools not distributed over certain occupations because it is impossible to forecast the exact job distribution of trainees.

[b] Although MDTA output is shown, it is not combined with output from private and public schools because MDTA courses do not necessarily continue, whereas the output from regular schools reflects ongoing programs. Actual output from MDTA courses may vary somewhat from these estimates, which were based on 1963 experience.

[c] See text, page 29.

H. THE SELECTED SERVICE OCCUPATIONS

In terms of June-1963 employment in the Boston Area, the six major service occupations surveyed were:

Waiters and waitresses (informal)	Nurses aide
Hairdressers	Formal waiters
Cooks and chefs	Psychiatric aides

Also discussed under this heading is the occupation, "landscape gardener—3-40.06" because it is the only occupation in the major group, "Agricultural, Horticultural, and Kindred Occupations," which was selected for study.

Waiters and Waitresses (Informal)—2-27

This category excluded formal waiters, which are discussed below.

Not only was mid-1963 employment high for waiters and waitresses, but expansion and replacement requirements are also high, both for the immediate future, and for the period ending in June 1966. These estimated requirements are for 2,327 workers by the middle of 1964 and 4,404 workers by mid-June 1966.

Demand will be high for both expansion and replacement needs.

This is an occupation in which qualifications for specific openings may vary widely in terms of experience, appearance, etc. It was suggested that among these applicants were many whose experience was limited to service in bars; these applicants are often not acceptable to some of the other types of establishments employing such workers.

No evidence is available of formal school training for this occupation in the Boston Area, as indicated by the absence of that occupational title from Table 21, and, unless the situation changes, needs will therefore not be met from this source. Of course, many (if not most) larger restaurant facilities do conduct informal training for their own people, and the training needed for satisfactory performance is probably not great.

This is another occupation in which there is a sizable amount of withdrawal from, and re-entry into, the labor force, with many married women available for part-time work during peak periods. While needs for replacement labor-force dropouts are heavy, many—if not most—of them may be met by re-entrants to the labor market.

Hairdressers—2-32.12

Total replacement and expansion requirements for hairdressers are estimated at 597 to mid-1964 and 672 to mid-1966, or less than ten percent of the June-1963 employment, even three years hence. Most of these requirements are for replacements of labor-force droputs and are not for expansion.

In fact, figures in the table indicate there will be a contraction of employment (221 persons) by 1966. Only the rather large number of **dropouts** expected will make it necessary to add new people in this occupation after mid-1964.

Cooks and Chefs—2.26

Demands for employees in this occupation are expected to require 556 persons by mid-1964 and 1,395 by mid-1966. The 1964 figure represents about ten percent of the June-1963 employment; the expansion and replacement figure to 1966 is about 25 percent of the 1963 figure.

About half of the demand over the three-year period results from plans for expansion.

There was a substantial number of unemployed applicants (246 persons) represented in the files of the Division of Employment Security's local employment offices in November 1963; perhaps this supply was large enough to fill requirements to mid-1964. In addition, 25 persons were expected to graduate from training courses by mid-1964.

Nurse's Aide—2-42.20

Survey estimates indicate that 283 persons will be needed in this occupation by mid-1964 and 583 by mid-1966.

However, this demand for new people is created entirely by the requirement for replacing labor force dropouts. Expansion needs are what might be termed **negative.** Fewer workers (221 fewer by 1964 and 530 fewer by 1966) will be needed as nurse's aides than were employed in mid-1963. This situation may be due to an increasing "professionalization" of nursing activities, alleviating the need for "aides". (One should bear in mind that fields allied to medicine will, in general, show tremendously increasing demands in the next few years—especially at the professional levels.)

In November 1963, there were on file in the Area's local employment offices of the Division of Employment Security 130 work applications from unemployed nurse's aides. More employers reported vacancies in this occupation as easy to fill (30) than reported them hard to fill (15).

No evidence was found of formal school training's being offered in the occupation in the Boston SMSA, as indicated by the absence of the occupational title from the list of occupations with school output (Table 21).

Formal Waiters—2-27.02

Expansion and replacement requirements in this occupation are expected to create a need for 442 workers by mid-1964 and 1,443

workers by 1966. In other words, expansion and replacement alone will require more than one-third as many formal waiters by 1966 as were employed in the occupation in mid-1963.

Some demand will undobutedly be created by the three new facilities: Convention Hall, Prudential Center and Americana Hotel, but much of the demand for new workers is expected to be created by labor-force dropouts.

Although great care was exercised to maintain the distinction between formal and informal waiters in the records, some confusion between the two categories probably carried through to the results; and it is possible that employment, both present and future, in the formal category is overstated somewhat, but in no event would the error thus introduced have been large, because return calls were made on most respondents to assure accuracy.

Of the 15 respondent employers in this category, more reported the occupation as easy to fill (9) than reported it hard to fill (5), and there were only 32 unemployed applicants listed in the files of the Division of Employment Security in November 1963.

Apparently there is no formal school training currently being offered in this occupation, a situation that may mean a sizable shortage of qualified persons in the field during the next few years unless steps are taken to prevent it. On the other hand, on-the-job experience may possibly take the place of formal school training in the occupation and be sufficient to meet demand for workers.

Psychiatric Aide—2-42.30

This is another occupation with moderately high employment (1,930) in mid-1963. By mid-1964 replacement and expansion needs will require 542 workers and by 1966, 1,352 additional individuals.

These figures reflect considerable demand for **replacements** to mid-1964 (399) and mid-1966 (1,098), although some expansion of staffs is anticipated (143 to mid-1964 and 254 to mid-1966).

Practically no unemployed applicants were listed as of November 1963, and no formal school training programs were reported. Curiously, however, two respondents listed the occupation as easy to fill, as opposed to none who listed it as difficult.

Other Service Occupations

Special diet workers, hospital orderlies, and passenger elevator operators were service occupations also listed on the questionnaire, the last-named because it was considered to be a declining rather than a shortage occupation.

With respect to elevator operators, only labor-force dropouts will make it necessary to add new people by mid-1964 and mid-1966. **Expansion demands** will apparently be negative, that is, employers estimated that fewer elevator operators will be required by mid-1964 (—34) and mid-1966 (—28) than were employed in mid-1963. But some demand for new workers in the occupation will be created by the need to replace labor-force dropouts (28 by mid-1964 and 114 by mid-1966).

Although "special diet workers (hospitals)" were included in the Survey, the number of persons so employed was small (969 in mid-1963).

Demand forecast to mid-1964 and mid-1966 was not great (64 by mid-1964 for expansion and replacement, and 158 by 1966); and about the same number of hospitals considered the jobs easy (19) as hard to fill (18).

Hospital orderlies are another small group (1,151 employees in June 1963), but expansion and replacement demands appear moderately large—212 persons will be needed by mid-1964 and 447 by mid-1966. Most of the demand, however, will be for replacement for labor-force dropouts rather than to meet expansion needs. It should be added that respondent hospitals about as often reported vacancies in the occupation easy (21) as hard (18) to fill. Although on-the-job training may supply the needs in this occupation, it should be noted that formal school training was apparently not being offered in the occupation in mid-1963.

Landscape Gardener—3-40.06

This occupation had been suggested for inclusion in the Survey list because it was believed to be a shortage occupation, and one in which demand would increase as road construction expanded.

However, only three respondents furnished information on landscape gardeners and together they employed only six men for this purpose. Accordingly, no estimates relating to the occupation have been included in this report.

For this lack of information there may be several reasons, among them the fact that landscaping services are frequently rendered by self-employed persons and such persons were not contacted in the Survey, and the further reason (and perhaps the more important one) that the Survey was limited to establishments employing four or more workers, while the many small businesses operating in this field have fewer than four employees.

While no training for this specific job was reported, three courses in closely related occupations were conducted under the MDTA. Thirteen persons had completed each of two courses for "arborists" in 1963; in a third course, for "groundskeeper (arborist)" ending early this year, 13 trainees remained until March 1964, but ten of these left to take training-related jobs shortly thereafter and only two remained until the course was finished.

TABLE 18

SELECTED SERVICE OCCUPATIONS SURVEYED

Estimated employment mid-June 1963, and estimated demands[a] for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1964 and mid-June 1963 to mid-June 1966 with distributions of estimates by size of inflation factors[b]

DOT code	Job title	Estimated employment mid-June 1963				Estimated demand for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1964				Estimated demand for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1966			
			Distribution of estimates by size of inflation factors				Distribution of estimates by size of inflation factors				Distribution of estimates by size of inflation factors		
		Total	Less than 2.1	2.1 to 100.0	Over 100.0	Total	Less than 2.1	2.1 to 100.0	Over 100.0	Total	Less than 2.1	2.1 to 100.0	Over 100.0
2-26	Cooks and chefs	5,696	1,285	4,411	-	556	332	224	-	1,395	840	555	-
2-27.02	Waiters formal	3,697	-	3,697	-	442	-	442	-	1,443	-	1,443	-
2-27	Waiters and waitresses (informal)	17,176	14,591	2,585	-	2,327	743	1,584	-	4,404	1,930	2,474	-
2-29.03	Special diet workers (hospital)	969	392	577	-	64	43	21	-	158	115	43	-
2-32.12	Hairdresser	8,195	17	8,178	-	597	2	595	-	672	3	669	-
2-42.10	Orderly (hospital)	1,151	810	341	-	212	168	44	-	447	318	129	-
2-42.20	Nurse's aide	4,860	2,654	2,206	-	283	177	106	-	583	91	492	-
2-42.30	Psychiatric aide	1,930	1,930	-	-	542	542	-	-	1,352	1,352	-	-
2-95.20	Elevator operator (passenger)	951	208	743	-	-6	25	-31	-	86	48	38	-

[a] After deduction of output from formal company training programs.

[b] Inflation factors are the multipliers by which the survey results are blown up to obtain estimates of the universe. The multipliers are based upon the ratio of employees in the sample in each industry to the total in the universe in that industry. In instances in which the apparent demand results from large inflation factors, results are correspondingly unstable.

TABLE 19

SELECTED SERVICE OCCUPATIONS SURVEYED

Breakdown of estimated demands[a] for expansion and replacement of labor-force dropouts to mid-June 1964 and mid-June 1966

Estimated demands for expansion and replacement of labor-force dropouts		Estimated demands for expansion		Estimated demands for replacement of labor-force dropouts		Job title	DOT code
Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966	Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966	Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966		
556	1,395	234	701	322	694	Cooks and chefs	2-26
442	1,443	119	583	323	860	Waiters formal	2-27.02
2,327	4,404	1,277	1,705	1,050	2,699	Waiters and waitresses (informal)	2-27
64	158	47	104	17	54	Special diet workers (hospital)	2-29.03
597	672	151	-221	446	893	Hairdresser	2-32.12
212	447	31	75	181	372	Orderly (hospital)	2-42.10
283	583	-221	-530	504	1,113	Nurse's aide	2-42.20
542	1,352	143	254	399	1,098	Psychiatric aide	2-42.30
-6	86	-34	-28	28	114	Elevator operator (passenger)	2-95.20

[a] After deduction of output from formal company training programs.

TABLE 20

SELECTED SERVICE OCCUPATIONS SURVEYED

Unemployed individuals registered in active files of local employment offices of Massachusetts Division of Employment Security November 22, 1963 and distribution of respondents reporting employees in the respective occupation by numbers indicating vacancies as "hard to fill" and "easy to fill"

DOT code	Job title	Number of unemployed registrants November 22, 1963[a]	Respondents reporting employees in the occupation		
			Total number[b]	Number reporting "hard to fill"	Number reporting "easy to fill"
2-26	Cooks and chefs	246	88	45	38
2-27.02	Waiters formal	32	15	5	9
2-27	Waiters and waitresses (informal)	479	52	14	36
2-29.03	Special diet workers (hospital)	16	40	18	19
2-32.12	Hairdresser	105	9	4	3
2-42.10	Orderly (hospital)	35	40	18	21
2-42.20	Nurse's aide	130	47	15	30
2-42.30	Psychiatric aide	1	4	-	2
2-95.20	Elevator operator (passenger)	108	25	5	16

[a] Note that these figures were obtained in November 1963, approximately five months after the June employment figures.

[b] "Total respondents" includes those expressing no opinion as well as those reporting "hard to fill" and "easy to fill".

TABLE 21

SELECTED SERVICE OCCUPATIONS SURVEYED

School output in June 1963 and anticipated school output in June 1964[a]

DOT code	Job title	Private and public schools combined			Private schools			Public schools		
		Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964	Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964	Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964
2-26	Cooks and chefs	25	8	17	-	-	-	25	8	17

[a] Exclusive of output from formal company training programs. Figures from these programs already subtracted from expansion and replacement demand. Trainee output from private and public schools not distributed over certain occupations because it is impossible to forecast the exact job distribution of trainees.

I. THE SELECTED SKILLED OCCUPATIONS

The 23 skilled jobs selected for study are found in such widely scattered fields of activity as:

Metalworking	Construction trades
Food production	Automobile repairing
Apparel manufacturing	Refrigeration Services

Maintenance of equipment and buildings

Baker—4-01.100

Despite the prospect of advancing automation in the baking industry, the Survey indicates that about 187 bakers will be needed between mid-1963 and mid-1966 to meet expansion and replacement demands. Employment at mid-June 1963 was estimated at 1,307.

Of the 26 responding firms listing data for this occupation, 15 found it hard to fill vacancies; seven considered them easy to fill. In November 1963, there were 44 unemployed bakers seeking work through the Division's local employment offices serving the Area.

The 1963-64 school output in this occupation was expected to number 36. To meet over-all needs, there is also a supply represented by dischargees from the Armed Services who have been trained in their schools for cooks and bakers.

Boner-dresser (meat packing)—4-09.204

Of the firms reporting employment in this occupation, the majority agree that automation will, in the near future, cut down the demand for boner-dressers.

Estimated employment of boner-dressers in mid-June 1963 was 110; three were seeking work in November through the Division's local employment offices serving the SMSA. The replacement and expansion demands in 1964 and 1966 reflect a trend toward lesser requirements.

Of the four respondents employing boner-dressers, one firm reported vacancies as hard to fill and the other considered them easy to fill.

No evidence was found for formal schooling of any kind in the occupation.

Tailor II (garment industry)—4-26.201

Estimated employment at mid-June 1963 for Tailor II was 342. The number of applications on file in November 1963 from unemployed applicants in this occupation was reported by the Division's local employment offices as 76.

No crystalized opinion was forthcoming from respondents with regard to the ease or difficulty of filling vacancies in this occupation. Very modest demands for expansion and replacement are noted in the three-year period to mid-1966.

There will be, by June 1964, an estimated 40 trainees completing courses for tailors conducted under public school auspices.

Furniture repairmen—4.35.710

Mid-June 1963 employment of furniture repairmen was estimated at 342. In November 1963, the Division's local employment offices in the Area reported 17 unemployed applicants registered for jobs in this occupation.

Of the eleven responding firms employing furniture repairmen, two felt that vacancies in the occupation were hard to fill, and six felt such jobs were easy to fill. (The remaining three expressed no opinion.)

Demands for expansion or replacement to mid-1966 will apparently be minimal. Total training output for the period ending at mid-June 1964 is expected to be 275.

Offset-press man—4-48.050

According to sample returns projected to the universe, offset-press men numbered 602 persons as of mid-June 1963. These are primarily persons in graphic arts, i.e., printing establishments.

Respondents indicated some—but not great—demand for new employees; actually, five to mid-1964 and 74 to mid-1966. Of the 12 firms reporting, eight indicated that vacancies in the occupation were hard to fill, and four considered them easy to fill. There were 23 unemployed applicants registered with the Division's employment offices in the Area in November 1963.

No public or private school reported training output specifically for this job. It appears, however, that many of the courses in printing include instruction in the operation of offset presses. One course being conducted under the MDTA at Waltham (20 students) will be completed this summer.

It should be noted that offset duplicating equipment is rather commonplace in large firms, and some 2,500 machines have been installed in the Boston Area. Operators of such machines are for the most part not included in the above totals since they are not termed "press men" and are not generally regarded as "printers".

Laster (hand and machine)—4-61.770

At mid-June 1963 an estimated 588 lasters (hand and machine) were employed in the Boston SMSA.

The projections to mid-1966 in terms of replacement and expansion demands are very modest. Public schools expected that 54 persons would complete laster training in the 1963-64 period. Another 32 persons had completed MDTA courses for this occupation.

Machinist-general—4-75.010

Employment of general machinists at mid-June 1963 was estimated at 8,969 persons.

Projected demands for replacements and expansion to mid-1966 show the growing need for machinists. Some supply will become available in the event of the phasing-out of the Watertown Arsenal and the force reductions at the Boston Naval Shipyard.

In November 1963, some 164 unemployed general machinists were represented in the application files of the Division of Employment Security's local employment offices.

Public and private schools expect to graduate 866 persons by 1964 from related training courses. It is very doubtful, of course, whether these graduates can perform the duties of an all-around machinist. Thus, requirements for such persons will most likely not be met **quality-wise** by these graduates, even though numerically the group may be sizable. It is possible that school output which we have classed in this category more properly belongs in the operator group (general) coded as 6-78.

Of the 86 respondents employing machinists, 56 found vacancies in this category hard to fill; 23 felt such vacancies were easy to fill; and the remaining seven firms expressed no opinion. While larger companies can utilize the lesser-skilled machine operators to advantage, the skilled general machinist is completely indispensable to small and medium-size establishments because of his versatility.

Tool and die maker—4-76.040

Employment in this field of work in the Boston SMSA at mid-June 1963 was estimated at 3,433.

Due to expansion and replacement needs, estimated demand for new workers will be 1,153 by mid-June 1966. Of the 69 firms listing this occupation, 55 considered vacancies hard to fill, and six felt it was easy to fill them. (The remaining eight expressed no opinion.)

No school courses were noted in the occupation.

Engine-lathe operator—4-78.011
Turret-lathe operator—4-78.021
Milling-machine operator—4-78.031
Surface-grinder operator—4-78.513

Whereas the all-around or general machinist is proficient in the operation of almost all machines (as well as in blue-print reading and set-up), machine operators are skilled in the use of only one or two machines. They usually read blue prints and subsequently perform set-up work in addition to operating the particular machine involved. As indicated above under "machinist, general" machine operators (including the four types listed above) are usually found in the larger plants.

Estimated expansion and replacement demands for these machine operators to mid-1964 ranged between a low of 71 for surface-grinder operator to a high of 453 for milling-machine operator.

Estimates of demand to mid-1966 for expansion and replacement show further needs, except for engine-lathe operators, of whom only 77 more will be required by the end of the three-year period.

There were relatively few men in these four occupations seeking work in November 1963 through the Division's local employment offices.

Most of the respondents reporting employees in the machine-operator occupations felt that vacancies were hard to fill.

Training in these specific occupations was not reported by any of the public or private schools studied in this Survey. However, at least some of the school output which we have classed under machinist (general)—4-75.010—may more properly be applicable to these machine-operator jobs. As indicated in Table 29 the number of men expected to complete MDTA courses for machine operators (general) by June of 1964 was 246. The only formalized training uncovered in the Survey in any specific one of these four occupations was an MDTA course for milling-machine operators, which had turned out ten trainees.

Inspector-machine shop—4-78.671

As of mid-June 1963, estimated employment of inspectors (machine shop) was 2,884 persons. Projections to mid-1964 and mid-1966 indicated requirements for 264 and 622 new workers, respectively, to meet both expansion and replacement needs. In November 1963 there were 58 unemployed workers in this category registered for jobs with the Division of Employment Security's employment offices located in the Area.

Of the 72 companies reporting employees in this occupation, 34 found it difficult to fill vacancies therein; 34 employers considered them easy to fill. (The remaining four had no opinion.)

Sheet-metal worker—4-80.010

It was estimated that there were approximately 3,489 sheet-metal workers employed in mid-June 1963 in the Boston SMSA.

Expansion and replacement demands will require 493 new workers by mid-1964. The Survey further indicates that replacement and expansion demands over the three-year period to mid-1966 will require 641 sheet-metal workers.

Jobless men seeking work in this occupation through local employment offices of the Division of Employment Security in November 1963 numbered 93.

Of the 32 respondents employing sheet-metal workers, 13 felt that vacancies were difficult to fill; these were offset by another 15 who felt that vacancies in the occupation were easy to fill. (The remaining four employers expressed no opinion.)

Courses in private and public schools will produce an estimated 189 sheet-metal-worker trainees by June 1964. No MDTA output was anticipated by mid-1964.

Heliarc welders—4-85.025

As of mid-June 1963, it was estimated that 1,030 persons were employed as heliarc welders in the Boston SMSA. Projections indicated that by June 1964 a total of 358 new workers would be needed for expansion and replacement; and by June 1966 aggregate needs would call for 489 persons.

Only seven unemployed heliarc welders were listed in the application files of the Division of Employment Security's employment offices serving the Area, as inventoried in November 1963.

Of the 36 respondents employing heliarc welders, 19 felt that vacancies in the occupation were hard to fill; whereas 14 felt they were easy to fill. (The remaining three had no opinion.)

In the Space Age, welded joints are often required to withstand highly corrosive liquids and gases under high pressures and temperatures without causing power-draining turbulence. Heliarc welding is a process used to weld stainless steel, aluminum and other metals subject to Space Age stresses.

Output from public school courses for these welders was estimated at 21, for the two-year period to mid-1964. In addition, an estimated 13 were expected to complete an MDTA course preparing men for entry into this occupation.

Electrician—4-97.010

At mid-June 1963 an estimated 1,226 men were employed in the Boston SMSA as electricians. It is interesting that anticipated increase in demand for employees was actually negative for the larger firms in the sample, that is those with inflation factors of less than 2.1 This "negative need" was offset by rather large needs in the small and medium-size firms, that is, those with inflation factors of 2.1 to 100.

There were 73 unemployed electricians seeking work in November 1963 through the local employment offices of Division of Employment Security serving the Boston SMSA.

Of the fourteen respondents listing this occupation, seven stated that vacancies were difficult to fill, and the other seven considered them easy to fill.

Formal training given in this occupation in public and private schools will result in an output of 379 trainees by 1964.

If one recalls that most older homes are wired with 110 AC and that many of the new appliances (dryers, dish-washers, air-conditioners, etc.) demand 220 wiring, it will be realized that many electricians will be required for the installation of such home appliances and the adaption of wiring to suit them. The current building boom shows no real signs of abating and accelerated demands may be expected from this source also.

Carpenter—5-25.110

Employment of carpenters in the Boston SMSA at mid-June 1963 was estimated at nearly 8,000. Projections to mid-1964 and mid-1966 by the large and smallest firms included in the Survey sample indicated a contraction in the employment of carpenters; but firms of intermediate size indicated a substantial demand (i.e., 2,316 by mid-1966).

In November 1963, the local employment offices of the Division of Employment Security serving the Boston SMSA reported 136 unemployed carpenters among the applicants seeking work. Some of these were no doubt seasonally displaced.

Of the 19 respondents reporting this occupation, twelve felt that carpenters were easy to find; whereas seven felt that such workers were difficult to find.

It was anticipated that formal training courses in public and private schools would turn out 197 trainees in the school years 1962-63 and 1963-64 combined—these graduates, however, could not be expected to step into jobs as full-fledged carpenters.

Butcher (meat cutter)—5-58.100

Estimated employment of butchers as of mid-June 1963 was 2,677. To mid-1964 expansion and replacement demand totaled 164. To mid-1966 needs were expected to double, i.e., to a total of 337 persons to replace labor-force dropouts and to provide for expansion.

As of November 1963 unemployed butchers who had registered for work at the local offices of the Division of Employment Security totaled a negligible 41.

Of the 12 respondents employing butchers, eight felt that vacancies in the occupations were difficult to fill, and four felt they were easy to fill.

No programs to train butchers in the Boston SMSA were revealed by the Survey.

Automobile mechanic—5-81.010

Estimated employment for auto mechanics as of mid-June 1963 was 7,538. The projections for 1964 and 1966 indicate a large demand to meet replacement and expansion needs. The order files of most local employment offices in the Boston SMSA usually contain several standing orders for good auto mechanics.

There were 129 men registered as automobile mechanics seeking work through the local employment offices of the Division of Employment Security in November 1963.

Of the 29 respondent firms listing automobile mechanics among their employees, 15 felt that vacancies in the occupation were difficult to fill; while 12 considered them easy to fill. (The remaining firms expressed no opinion.)

Two factors that seem to contribute to the shortage situation in this occupation are long hours and low entry-wage rates.

Public and private schools combined expected that 674 persons would have completed training for this occupation in the two-year period ending in June 1964.

Automobile-body repairmen—5-81.510

As of mid-June 1963 estimated employment of automobile-body repairmen was 895. Only 25 unemployed men classified as automobile-body repairmen were registered as seeking work through the Division of Employment Security's local offices in November 1963.

There may be a moderate demand in this occupation not readily discernible from the Survey results. The reason for this is that firms employing fewer than four workers were excluded from the Survey. This fact means that small operators who may employ one-third or more of the personnel in this occupation are left out. A further confirmation of the needs in this occupation lies in the fact that persons completing public, private or MDTA school courses have little or no trouble in finding jobs.

The public schools reported a total of 29 men expected to complete training in the two-year period through June 1964. In addition were the estimated number who would finish MDTA courses in March 1964. In late 1963 this number had been set at 29; by May of 1964, it had dwindled to 18.

Building maintenance man—5-83.611

Maintenance mechanics—5-83.641

The building maintenance man is concerned with the upkeep of the physical plant, while the maintenance mechanic attends to the machinery within the plant. However, at times these jobs tend to overlap. Men in both of these occupations are usually adapt at adjusting machinery, in making minor repairs, or in painting.

Estimated employment at June 1963 in the Boston SMSA for maintenance mechanic stood at 8,895, while that for the building maintenance man was 1,824.

For the former occupation, the employment estimates to mid-1964 and mid-1966 were higher by 391 and 786, respectively; for the latter, the corresponding estimates were 78 and 143 higher than the June 1963 figures.

In addition to the needs visualized for expansion, a sizable number of men will be needed to replace men in these two occupations dropping out of the labor force. It was estimated that 544 maintenance mechanics will be lost to the occupation for this reason by mid-1964, and that a total of 1,000 will have withdrawn by mid-1966.

Among building maintenance men also, prospective dropouts from the labor force were estimated to be substantial in relation to the number engaged in the occupation—83 in the one-year period ahead, 202 in the entire three-year period.

An inventory of the application files of the Division of Employment offices serving the SMSA listed 143 jobless maintenance mechanics and 133 unemployed building-maintenance men looking for work in November 1963.

Two-thirds of the 74 respondents listing building-maintenance men on their questionnaire considered the job as easy to fill. The 335 respondents who employed maintenance mechanics were more evenly divided—156 considered vacancies in this occupation as easy to fill, 139 regarded them as hard to fill, and the remaining 40 expressed no opinion.

None of the schools furnishing information for the survey reported any training for either maintenance mechanics or building-maintenance men.

Refrigerator mechanic—5-83.941

For this occupation, employment in the Boston SMSA at mid-June 1963 was estimated at 507. Projections to mid-1964 and mid-1966 indicated sizable needs, 150 and 230 additional persons, respectively.

Expansion needs in this occupation may be even greater than are indicated by the Survey tabulations in view of the booming building activitiy in the SMSA, since air-conditioning is a must in the modern building, and owners of older-type structures are under pressure to meet competition by installing such facilities.

The schools furnishing information for the Survey expected to have a total of 234 students complete training for this occupation in the school years 1962-63 and 1963-64.

Shipfitter—4-84.012

Although this occupation was selected for study as one in which it was expected that employment in the SMSA would continue to decline, it is not listed on the accompanying tables because the most important employer of shipfitters in the SMSA was unable to cooperate in the Survey due to special circumstances affecting its plans. Accordingly, the information available regarding this occupation was not adequate for purposes of estimating future demand, etc.

In November 1963, there were 121 displaced shipfitters seeking work through the Division's local employment offices in the SMSA; 84 of these were registered in the Quincy office.

TABLE 22

SELECTED SKILLED OCCUPATIONS SURVEYED

Estimated employment mid-June 1963, and estimated demands[a] for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1964 and mid-June 1963 to mid-June 1966 with distributions of estimates by size of inflation factors[b]

DOT code	Job title	Estimated employment mid-June 1963				Estimated demand for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1964				Estimated demand for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1966			
			Distribution of estimates by size of inflation factors				Distribution of estimates by size of inflation factors				Distribution of estimates by size of inflation factors		
		Total	Less than 2.1	2.1 to 100.0	Over 100.0	Total	Less than 2.1	2.1 to 100.0	Over 100.0	Total	Less than 2.1	2.1 to 100.0	Over 100.0
4-01.100	Baker	1,307	298	1,009	-	44	44	-	-	187	103	84	-
4-09.204	Boner-dresser(meat packing)	110	110	-	-	-2	-2	-	-	38	38	-	-
4-26.201	Tailor II (garments)	342	342	-	-	21	21	-	-	41	41	-	-
4-35.710	Furniture repairman	342	58	284	-	2	2	-	-	9	9	-	-
4-48.050	Offset-press man	602	172	430	-	5	5	-	-	74	20	54	-
4-61.770	Laster(hand and machine)	588	433	155	-	25	25	-	-	54	54	-	-
4-75.010	Machinist, general	8,969	2,805	5,581	583	1,663	218	1,056	389	2,707	552	1,572	583
4-76.040	Tool and die maker	3,433	1,084	2,349	-	478	100	378	-	675	226	449	-
4-78.011	Engine-lathe operator	1,450	624	826	-	96	36	60	-	77	-48	125	-
4-78.021	Turret-lathe operator	1,999	838	1,161	-	253	100	153	-	507	234	273	-
4-78.031	Milling-machine operator	1,621	906	326	389	453	53	12	388	627	70	169	388
4-78.513	Surface-grinder operator	750	369	381	-	71	35	36	-	199	82	117	-
4-78.671	Inspector, machine shop	2,884	2,005	879	-	264	195	69	-	622	486	136	-
4-80.010	Sheet metal worker	3,489	677	2,812	-	493	71	422	-	641	229	412	-
4-85.025	Heliarc welder	1,030	648	118	264	358	12	82	264	489	1	91	397
4-97.010	Electrician	1,226	135	1,091	-	36	-38	74	-	177	-21	198	-
5-25.110	Carpenter	7,962	368	4,819	2,775	946	-131	1,341	-264	1,707	-125	2,316	-484
5-58.100	Butcher-meat cutter	2,677	1,066	1,611	-	164	88	76	-	337	261	76	-
5-81.010	Automobile mechanic	7,538	275	7,263	-	1,282	13	1,269	-	1,192	32	1,160	-
5-81.510	Automobile body repairman	895	33	862	-	2	2	-	-	78	4	74	-
5-83.611	Building maintenance man	1,824	801	1,023	-	161	78	83	-	345	222	123	-
5-83.641	Maintenance mechanic	8,895	3,827	4,448	620	935	201	151	583	1,786	682	521	583
5-83.941	Refrigeration mechanic	507	288	87	132	150	18	-	132	230	59	39	132

[a] After deduction of output from formal company training programs.

[b] Inflation factors are the multipliers by which the survey results are blown up to obtain estimates of the universe. The multipliers are based upon the ratio of employees in the sample in each industry to the total in the universe in that industry. In instances in which the apparent demand results from large inflation factors, results are correspondingly unstable.

TABLE 23

SELECTED SKILLED OCCUPATIONS SURVEYED

Breakdown of estimated demands[a] for expansion and replacement of labor-force dropouts to mid-June 1964 and mid-June 1966

Estimated demands for expansion and replacement of labor-force dropouts		Estimated demands for expansion		Extimated demands for replacement of labor-force dropouts		Job title	DOT code
Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966	Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966	Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966		
44	187	-17	48	61	139	Baker	4-01.100
-2	38	-15	18	13	20	Boner-dresser (meat packing)	4-09.204
21	41	21	41	-	-	Tailor II (garments)	4-26.201
2	9	1	5	1	4	Furniture repairman	4-35.710
5	74	2	58	3	16	Offset-press man	4-48.050
25	54	-16	-59	41	113	Laster (hand and machine)	4-61.770
1,663	2,707	1,121	1,876	542	831	Machinist, general	4-75.010
478	675	422	538	56	137	Tool and die maker	4-76.040
96	77	55	-54	41	131	Engine-lathe operator	4-78.011
253	507	171	278	82	229	Turret-lathe operator	4-78.021
453	627	205	302	248	325	Milling-machine operator	4-78.031
71	199	58	78	13	121	Surface-grinder operator	4-78.513
264	622	172	382	92	240	Inspector, machine shop	4-78.671
493	641	413	481	80	160	Sheet metal worker	4-80.010
358	489	331	440	27	49	Heliarc welder	4-78.025
36	177	-45	8	81	169	Electrician	4-97.010
946	1,707	686	1,441	260	266	Carpenter	5-25.110
164	337	57	106	107	231	Butcher-meat cutter	5-58.100
1,282	1,192	1,001	1,062	281	130	Automobile mechanic	5-81.010
2	78	1	39	1	39	Automobile body repairman	5-81.510
161	345	78	143	83	202	Building maintenance man	5-83.611
935	1,786	391	786	544	1,000	Maintenance mechanic	5-83.641
150	230	141	204	9	26	Refrigeration mechanic	5-83.941

[a] After deduction of output from formal company training programs.

TABLE 24

SELECTED SKILLED OCCUPATIONS SURVEYED

Unemployed individuals registered in active files of local employment offices of Massachusetts Division of Employment Security November 22, 1963 and distribution of respondents reporting employees in the respective occupation by numbers indicating vacancies as "hard to fill" and "easy to fill"

DOT code	Job title	Number of unemployed registrants November 22, 1963[a]	Respondents reporting employees in the occupation		
			Total number[b]	Number reporting "hard to fill"	Number reporting "easy to fill"
4-01.100	Baker	44	26	15	7
4-09.204	Boner-dresser(meat packing)	3	4	1	3
4-26.201	Tailor II (garments)	76	1	0	0
4-35.710	Furniture repairman	17	11	2	6
4-48.050	Offset-press man	23	12	8	4
4-61.770	Laster (hand and machine)	-	13	9	3
4-75.010	Machinist, general	164	86	56	23
4-76.040	Tool and die maker	22	69	55	6
4-78.011	Engine-lathe operator	17	34	20	8
4-78.021	Turret-lathe operator	39	51	35	14
4-78.031	Milling-machine operator	25	51	28	19
4-78.513	Surface-grinder operator	4	34	22	9
4-78.671	Inspector, machine shop	58	72	34	34
4-80.010	Sheet metal worker	93	32	13	15
4-85.025	Heliarc welder	7	36	19	14
4-97.010	Electrician	73	14	7	7
5-25.110	Carpenter	136	19	7	12
5-58.100	Butcher-meat cutter	41	12	8	4
5-81.010	Automobile mechanic	129	29	15	12
5-81.510	Automobile body repairman	25	12	8	3
5-83.611	Building maintenance man	133	74	24	49
5-83.641	Maintenance mechanic	143	335	139	156
5-83.941	Refrigeration mechanic	7	34	15	14

[a] Note that these figures were obtained in November 1963, approximately five months after the June employment figures.

[b] "Total respondents" include those expressing no opinion as well as those reporting "hard to fill" and "easy to fill".

TABLE 25

SELECTED SKILLED OCCUPATIONS SURVEYED

School output in June 1963 and anticipated school output in June 1964[a]

DOT code	Job title	Private and public schools combined			Private schools			Public schools			MDTA courses[b]		
		Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964	Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964	Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964	Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964
4-01.100	Baker	36	20	16	-	-	-	36	20	16	-	-	-
4-26.201	Tailor II (garments)	40	16	24	-	-	-	40	16	24	-	-	-
4-35.710	Furniture repairman	275	137	138	60	35	25	215	102	113	-	-	-
4-61.770	Laster (hand and machine)	54	23	31	-	-	-	54	23	31	32	-	32
4-75.010	Machinist, general	866	373	493	371	168	203	495	205	290	-	-	-
4-78.031	Milling machine operator	-	-	-	-	-	-	-	-	-	10	-	10
4-78.671	Inspector, machine shop	-	-	-	-	-	-	-	-	-	13	-	13
4-80.010	Sheet metal worker	189	70	119	13	4	9	176	66	110	-	-	-
4-85.025	Heliarc welder	21	7	14	-	-	-	21	7	14	13	-	13
4-97.010	Electrician	379	201	178	50	30	20	329	171	158	-	-	-
5-25.110	Carpenter	197	80	117	14	8	6	183	72	111	-	-	-
5-81.010	Automobile mechanic	674	288	386	295	125	170	379	163	216	-	-	-
5-81.510	Automobile body repairman	68	31	37	-	-	-	68	31	37	29	-	29
5-83.941	Refrigeration mechanic	234	119	115	234	119	115	-	-	-	-	-	-

[a] Exclusive of output from formal company training programs. Figures from these programs already subtracted from expansion and replacement demand. Trainee output from private and public schools not distributed over certain occupations because it is impossible to forecast the exact job distribution of trainees.

[b] Although MDTA output is shown, it is not combined with output from private and public schools because MDTA courses do not necessarily continue, whereas the output from regular schools reflects ongoing programs. Actual output from MDTA courses may vary somewhat from these estimates, which were based on 1963 experience.

J. THE SELECTED SEMISKILLED OCCUPATIONS

The occupations selected for survey in this major group are found in several widely different industries. Among them were garment shops and other factories producing a variety of fabricated products, e.g.: carpet and rugs, home furnishings, etc. Four occupations found in shoe plants, were also selected; six others were principally related to the metalworking and electronics industries. Also surveyed were the occupations of routeman, (distribution), truck driver, automobile service-station attendant, and electrical repairman. (All of these were included in the study because it seemed likely that demands for workers to fill vacancies therein would exceed the supply; none was a suspected "declining occupation.")

Sewing-machine operators—6-27.5

As listed in the accompanying tables, the occupations in this group covered stitching on a wide range of garments and on other fabricated products. In total, the estimated number of workers employed as sewing-machine operators in mid-June 1963 was 11,094.

It will be realized that there is comparatively little mobility between one type of sewing-machine operation and another. The employer seeking an operator to work on style garments would not regard experience on home furnishings, for example, as meeting his specifications (nor would the displaced stitcher whose experience was limited to home furnishings look upon work on style garments as suitable employment). Even within a given factory, stitchers often prefer to adhere rather closely to the single operation in which they have acquired dexterity (and can thus attain maximum earnings at piecework rates).

With the foregoing qualifications in mind, it is possible to review the data shown in the tables in terms of aggregates.

The estimated over-all demand for these assorted sewing-machine operators to June 1964 was 1,776, with 1,104 needed for staff expansion and 672 for replacement of persons leaving the work force. In the three-year period ending at mid-June 1966, over-all demand was estimated at 3,915, of which 2,035 would be for added jobs and 1,880 to fill vacancies caused by withdrawals from the labor market.

Despite acute needs for stitchers at peak seasons (which vary in timing with the type of garment), there is relatively little training being conducted for this occupation. Such needs are often met by part-time work shifts set up to match the hours of the day or evening when housewives with experience in the occupation are available for temporary work.

The Boston public schools reported the only training for power sewing-machine operators in the SMSA; 70 students had been graduated in 1962-63 and 71 more were expected to finish the course in 1963-64.

Opinions of employers reporting workers in these occupations were almost evenly divided as to whether vacancies were easy or hard to fill.

In all, there were 348 sewing-machine operators of various types seeking work in the Area in November 1963 through the Division's local employment offices.

Cutters, machine (boots and shoes)—6-61.042

Edge trimmer, machine (boots and shoes)—6-61.051

Stitchers (boots and shoes)—6-61.200

The factories answering the Survey questionnaires accounted for almost a third of the total employment in the SMSA in the shoe and leather manufacturing industry at mid-June 1963. The estimates for the boot and shoe occupations based upon this relatively high rate of representation would therefore be fairly firm.

In each of the three occupations listed above, demands for the one-year and three-year periods ahead were high in relation to the estimated number at work at mid-June 1963. Estimated demands for stitchers and cutters were largely in terms of replacements for workers leaving the labor force. Most of the edge-trimmers required were for staff expansion purposes.

In all three of these occupations, there were more respondents reporting jobs as hard to fill than reporting them easy to fill. In November 1963, 36 cutters and 11 edge-trimmers were registered for work in the various State employment offices serving the Area; no shoe stitchers were reported in that inventory.

Courses for edge-trimmers, stitchers and other occupations in the boot and shoe industry were being conducted at the Lynn Shoemaking School. The School reported an output of 26 edge-trimmers and 50 stitchers in the 1962-63 year and expected to turn out 33 edge-trimmers and 69 stitchers in the following year.

There were two courses for edge-trimmers conducted under the Manpower Development and Training Act; 29 had completed or were expected to complete training in these courses in the 1963-64 year. There were also two "MDTA" courses for shoe stitchers; total output in the 1963-64 year was estimated at 25.

Drill-press operator—6-78.08

Floor assembler—6-78.632

The questionnaires mailed to employers in the durable-goods industries listed the item "Machine operators (Specify type)."

The number of drill-press operators employed at mid-June 1963 was estimated at 1,095. Substantially all of this total represented single-spindle operators; data for the estimated 43 multiple-spindle operators have been combined with those for the single-spindle operators in the accompanying tables.

Of the estimated demand of 168 for drill-press operators in the three-year period ahead, 87 would be needed by June of 1964. Most of the requirements were in terms of replacements of men leaving the labor force—75 to June 1964 and 205 by June 1966. The Survey tabulations indicated that the total number at work in the occupation would increase by 12 in the 1963-64 year but by mid-June of 1966 would have dropped below the 1963 figure by 37.

Twenty-six respondents listed drill-press operators on their returns; 14 of these were of the opinion that vacancies in this occupation were easy to fill.

The estimate of 283 floor assemblers employed in June of 1963 was based upon returns from five employers, of whom two considered vacancies in the occupation as hard to fill and three regarded recruitment as presenting no difficulties.

In proportion to the number currently employed as floor assemblers, estimated needs over the three-year period to June 1966 were relatively heavy—144 would be required, of whom 63 would represent additions, and 81 would replace persons dropping out of the labor force. For the first year of this period, expansion needs were estimated at 49 and replacement requirements at 25, a total demand of 74.

Employment offices of the Division of Employment Security located in the SMSA reported that among the job applicants represented in their active files in November 1963 were 17 drill-press operators and 13 floor assemblers.

None of the schools reported courses leading to these two specific occupations, but several courses conducted under the MDTA for machine operators both completed and in progress as this report is being prepared, would, no doubt, include some training in both. Moreover, it is likely that many of the unemployed men registered as machinists in November 1963 in the application files of the local employment offices would be proficient in these and other related occupations.

Forming-press operator—6-88.627

Information regarding this occupation was furnished under the item on the questionnaire, "Machine operators (specify below)", by 22 employers. Only three of them checked the occupation as one in which vacancies were hard to fill.

Employment at mid-June 1963 was estimated at 994. Expansion needs over the ensuing three-year period were estimated at 89 and replacement of labor-force dropouts at 45, a total of 134. For the year ending at mid-1966, needs were estimated at 96; of these 78 would be for new jobs and 18 for filling vacancies created by withdrawals from the labor force.

As in the case of the drill-press operators and floor assemblers, referred to above, none of the training courses reported by the schools was limited to this specific operation. However, it is probable that the men registered as machinists would be readily adaptable to this occupation if not already experienced in it.

Solderers and wirers—6-95.010

Among the respondents reporting employment in this occupation was a small firm which expected a sizable increase in its volume of business and a corresponding expansion in personnel, particularly in this occupational category.

Inclusive of the inflated figures from this (probably atypical) firm the tabulations show an estimated 2138 solderers and wirers employed in the Boston SMSA at mid-June 1963. They also indicate a need for 1,711 more to June 1964, of which 1,490 would represent expansion of staffs and 221 replacements of labor-force dropouts. To mid-1966 estimated needs would aggregate 2,485—1,853 for expansion and 632 for replacement of labor-force dropouts.

Exclusive of this firm, the probably more-realistic estimates would be 1921 employed in June of 1963, with needs for 623 to mid-June 1964 (402 for added jobs and 221 for replacements) and for 1,252 to mid-1966 (620 for expansion and 632 to fill vacancies created by withdrawals from the labor market).

Of the 29 employers reporting workers in this occupation, eight considered vacancies therein as hard to fill, 18 believed them easy to fill and three expressed no opinion.

In November 1963, there were 80 unemployed individuals in this occupation registered for work with the Division of Employment Security's employment offices located in the Area.

None of the schools furnishing information for the survey reported training courses for this occupation. However, despite the majority opinion among the respondents that vacancies were easy to fill, one large company stated that it was so hard to find really skilled operatives in this occupation that the firm was starting its own training program.

Routeman (milk, bread, laundry, etc.)—7-35.100

Job descriptions which accompanied the questionnaires described duties of this occupation as "delivery; pick up; distribution; record of customer purchase."

About half of the respondents reporting employees in this occupation (14 of the 27 who expressed an opinion) considered it one in which vacancies were easy to fill.

As might be expected from the nature of the job, varied industry groups were represented among the 32 respondents listing employment of routemen on their questionnaires. On the basis of the data furnished by them, the number of individuals working in this occupation at mid-June 1963 was estimated at 7,953, with 671 more to be needed by mid-June of 1964 and 1,588 by the end of the three-year period. Much of this demand was for additional jobs—364 in the one-year forecast period and 987 by the end of three years. Labor-force dropouts before mid-June 1964 would leave 307 vacancies to be filled; such vacancies would total 601 in three years.

In November 1963, there were 129 routemen among the applicants seeking work through the local employment offices of the Division of Employment Security serving the Area.

It is the practice of many companies employing routemen to give them some training before assignments to a route and to have them work for a short period with an experienced man on the job before embarking "on their own". None of the reporting schools were conducting courses for this occupation.

Truck driver (local)—7-36.000

In the accompanying tables, the item "truck driver" combines the estimates for:

Truck driver (local)—7-36
Truck driver (heavy)—7-36.250
Truck driver (light)—7-36.260

since the data reported under DOT code "7-36" probably included both heavy and light truck drivers on local delivery routes (as the Survey job description given for "truck driver-local—7-36" would suggest).

The over-all estimate for truck drivers employed on local routes within the Boston SMSA at mid-June 1963 was 10,635, with nearly 90 percent of that figure based upon sample data which were blown up by inflation factors in excess of 2.0 and 15 percent based upon sample data which were multiplied by factors in excess of 100.

To mid-June 1964, net demand for local truck drivers was estimated at 375, of which 162 represented expansion needs and 213 replacements required for labor-force dropouts. To June 1966, requirements were estimated at 929—580 for additional jobs and 349 to fill vacancies created by withdrawals from the labor force.

Local employment offices of the Division of Employment Security had on hand in November 1963 work applications from 1059 unemployed truck drivers. Some of these had undoubtedly been seasonally displaced with the approach of cold weather.

Of the 37 respondents reporting truck drivers on their payrolls, only 12 regarded the job as hard to fill, while 21 checked it as easy to fill, and the remaining four expressed no opinion.

None of the reporting schools listed courses for truck drivers. It would appear that training is confined to that done "on the job".

Automobile-service station attendant—7-60.500

This occupation is probably under-represented in the Survey because so many such attendants are found in service stations employing fewer than four workers.

As inflated for purposes of the Survey, the data furnished by the 10 respondents who reported such attendants yielded an estimate of 948 employed in June 1963, with 617 needed in the following year and 657 in the three-year period to June 1966. Most of these estimated requirements were for replacement of labor-force dropouts—489 in the 1963-64 year and 527 to mid-June 1966. Only 128 were estimated for expansion needs to June 1964; only 130 for the three-year period. (One explanation suggested for the smallness of the expansion demand indicated was the introduction of self-service at gas stations.)

The 10 respondents were almost evenly divided as to the recruitment situation; four considered this job hard to fill, five regarded it as easy, one had no opinion.

There were 121 of these men looking for work through the local employment offices of the Division of Employment Security in November 1963.

No training courses were reported by any of the responding schools. It is likely that a short period of one-the-job training is all that is required.

Electrical-appliance repairman—7-83.058

This is also an occupation in which many of the workers are employed by small establishments with fewer than four employees, and it is probably under-represented in the tabulations for that reason. Moreover, the Survey did not include the self-employed, many electrical-appliance repairmen are in business for themselves.

Of the 22 respondents who reported employees in this occupation, 13 regarded the job as hard to fill, while nine considered it easy to fill. There were only three applications for work in this field on file with the Division's local employment offices in November 1963.

Employment of electrical-appliance repairmen at mid-June 1963 was estimated at 313. It was also estimated that 44 would be needed in the following year—four for added positions and 40 to replace workers leaving the labor force.

For the three-year period ahead, requirements were estimated at 109, of which 58 would represent staff additions and 51 would fill jobs left vacant by persons withdrawing from the labor market.

While none of the public or private schools furnishing information for the Survey listed courses in this occupation, it was noted from a Division report of March 31, 1964, that one course (Project No. 257) had been started in Boston February 3, 1964, and another (Project No. 267-6) had been approved "subject to availablility of funds as determined by the Manpower Administrator" but had not yet been started at March 31, 1964.

TABLE 26

SELECTED SEMISKILLED OCCUPATIONS SURVEYED

Estimated employment mid-June 1963, and estimated demands[a] for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1964 and mid-June 1963 to mid-June 1966, with distributions of estimates by size of inflation factors[b]

DOT code	Job title	Estimated employment mid-June 1963				Estimated demand for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1964				Estimated demand for expansion and replacement of labor-force dropouts mid-June 1963 to mid-June 1966			
		Total	Distribution of estimates by size of inflation factors			Total	Distribution of estimates by size of inflation factors			Total	Distribution of estimates by size of inflation factors		
			Less than 2.1	2.1 to 100.0	Over 100.0		Less than 2.1	2.1 to 100.0	Over 100.0		Less than 2.1	2.1 to 100.0	Over 100.0
6-27.505	Sewing-machine operator (carpets; rugs)	304	7	297	-	74	-	74	-	74	-	74	-
6-27.510	Sewing-machine operator (fabrics n.e.c.)	275	-	275	-	183	-	183	-	183	-	183	-
6-27.514	Sewing-machine operator (home furnishings)	665	-	665	-	286	-	286	-	476	-	476	-
6-27.532	Sewing-machine operator (men's tailored garments)	4,439	1,672	2,767	-	405	129	276	-	1,442	431	1,011	-
6-27.535	Sewing-machine operator (style garments)	761	-	761	-	95	-	95	-	190	-	190	-
6-27.536	Sewing-machine operator (women's coats and suits)	1,696	-	1,696	-	549	-	549	-	870	-	870	-
6-27.53	Sewing-machine operator (other types of garments, etc.)	2,954	296	2,658	-	184	46	138	-	680	84	596	-
6-61.042	Cutter-machine(boot and shoe)	936	408	528	-	140	50	90	-	294	70	224	-
6-61.051	Edge trimmer, machine (boot and shoe)	166	51	115	-	52	6	46	-	55	9	46	-
6-61.200	Stitching-machine operator (boot and shoe)	1,947	1,627	320	-	269	223	46	-	558	466	92	-
6-78.08	Drill press operator	1,095	486	609	-	87	37	50	-	168	18	150	-
6-78.632	Floor assembler	283	283	-	-	74	74	-	-	144	144	-	-
6-88.627	Forming-press operator	994	455	539	-	96	34	62	-	134	77	57	-
6-95.010	Solderers and wirers	2,138	1,201	937	-	1,711	287	1,424	-	2,485	757	1,728	-
7-35.100	Routeman	7,953	3,146	3,991	816	671	108	446	117	1,588	275	1,079	234
7-36	Truck driver	10,635	1,240	7,760	1,635	375	-47	422	-	929	22	791	116
7-60.500	Automobile service-station attendant	948	124	824	-	617	27	590	-	657	60	597	-
7-83.058	Electrical-appliance repairman	313	73	240	-	44	5	39	-	109	30	79	-

[a] After deduction of output from formal company training programs.

[b] Inflation factors are the multipliers by which the survey results are blown up to obtain estimates of the universe. The multipliers are based upon the ratio of employees in the sample in each industry to the total in the universe in that industry. In instances in which the apparent demand results from large inflation factors, results are correspondingly unstable.

TABLE 27

SELECTED SEMISKILLED OCCUPATIONS SURVEYED

Breakdown of estimated demands for expansion and replacement of labor-force dropouts to mid-June 1964 and mid-June 1966

Estimated demands for expansion and replacement of labor-force dropouts		Estimated demands for expansion		Estimated demands for replacement of labor-force dropouts		Job title	DOT code
Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966	Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966	Total mid-June 1963 to mid-June 1964	Total mid-June 1963 to mid-June 1966		
74	74	74	74	-	-	Sewing-machine operator (carpets; rugs)	6-27.505
183	183	183	183	-	-	Sewing-machine operator (fabrics n.e.c.)	6-27.510
286	476	286	476	-	-	Sewing-machine operator (home furnishings)	6-27.514
405	1,442	53	432	352	1,010	Sewing-machine operator (men's tailored garments)	6-27.532
95	190	95	190	-	-	Sewing-machine operator (style garments)	6-27.535
549	870	229	229	320	641	Sewing-machine operator (women's coats and suits)	6-27.536
184	680	184	451	-	229	Sewing-machine operator (other types of garments, etc.)	6-27.53
140	294	50	112	90	182	Cutter-machine (boot and shoe)	6-61.042
52	55	48	47	4	8	Edge trimmer machine (boot and shoe)	6-61.051
269	558	88	136	181	422	Stitching-machine operator (boot and shoe)	6-61.200
87	168	12	-37	75	205	Drill press operator	6-78.08
74	144	49	63	25	81	Floor assembler	6-78.632
96	134	78	89	18	45	Forming-press operator	6-88.627
1,711	2,485	1,490	1,853	221	632	Solderers and wirers	6-95.010
671	1,588	364	987	307	601	Routeman	7-35.100
375	929	162	580	213	349	Truck driver	7-36
617	657	128	130	489	527	Automobile service-station attendant	7-60.500
44	109	4	58	40	51	Electrical appliance repairman	7-83.058

[a] After deduction of output from formal company training programs.

TABLE 28

SELECTED SEMISKILLED OCCUPATIONS SURVEYED

Unemployed individuals registered in active files of local employment offices of Massachusetts Division of Employment Security November 22, 1963 and distribution of respondents reporting employees in the respective occupation by numbers indicating vacancies as "hard to fill" and "easy to fill"

DOT code	Job title	Number of unemployed registrants November 22, 1963[a]	Respondents reporting employees in the occupation		
			Total number[b]	Number reporting "hard to fill"	Number reporting "easy to fill"
6-27.505	Sewing-machine operator (carpets; rugs)	-	2	1	1
6-27.510	Sewing-machine operator (fabrics n.e.c.)	1	1	1	0
6-27.514	Sewing-machine operator (home furnishings)	33	1	1	0
6-27.532	Sewing-machine operator (men's tailored garments)	100	4	0	3
6-27.535	Sewing-machine operator (style garments)	108	1	1	0
6-27.536	Sewing-machine operator (women's coats and suits)	105	1	1	0
6-27.53	Sewing-machine operator (other types of garments, etc.)	1	2	1	1
6-61.042	Cutter-machine(boot and shoe)	36	16	11	5
6-61.051	Edge trimmer machine boot and shoe	11	12	7	4
6-61.200	Stitching-machine operator boot and shoe	-	11	8	3
6-78.08	Drill-press operator	17	21	6	14
6-78.632	Floor assembler	13	5	2	3
6-88.627	Forming-press operator	42	22	3	17
6-95.010	Solderers and wirers	80	29	8	18
7-35.100	Routeman	129	32	13	14
7-36	Truck driver	1,059	37	12	21
7-60.500	Automobile service-station attendant	121	10	4	5
7-83.058	Electrical appliance repairman	3	22	13	9

[a] Note that these figures were obtained in November 1963, approximately five months after the June employment figures.

[b] "Total respondents" includes those expressing no opinion as well as those reporting "hard to fill" and "easy to fill".

TABLE 29

SELECTED SEMISKILLED OCCUPATIONS SURVEYED

School output in June 1963 and anticipated school output in June 1964[a]

DOT code	Job title	Private and public schools combined			Private schools			Public schools			MDTA courses[b]		
		Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964	Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964	Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964	Total for 2-year period	Output year ending June 1963	Estimated output year ending June 1964
6-78	Machine operator, general	-	-	-	-	-	-	-	-	-	246	-	246
6-27.530	Sewing machine operator	141	70	71	-	-	-	141	70	71	-	-	-
6-61.051	Edge trimmer machine (boot and shoe)	88	26	62	-	-	-	59	26	33	29	-	29
6-61.200	Stitching, machine (boot and shoe)	144	50	94	-	-	-	119	50	69	25	-	25

[a]Exclusive of output from formal company training programs. Figures from these programs already subtracted from expansion and replacement demand. Trainee output from private and public schools not distributed over certain occupations because it is impossible to forecast the exact job distribution of trainess.

[b]Although MDTA output is shown, it is not combined with output from private and public schools because MDTA courses do not necessarily continue, whereas the output from regular schools reflects ongoing programs. Actual output from MDTA courses may vary somewhat from these estimates, which were based on 1963 experience.

APPENDIX A

METHODOLOGY

1. THE FOUR SURVEYS

The basic information sought in the study was employer estimates of labor requirements in occupations in which shortages or surpluses were anticipated in the next three years, and the **Employer Questionnaire** was developed to obtain this information.

a. Survey of Employment Offices Regarding Shortage/Surplus Occupations

In the development of the Employer Questionnaire, however, it was also necessary to conduct a survey of the 14 Boston SMSA* employment offices of the Massachusetts Division of Employment Security to obtain a preliminary estimate of the numbers of workers needed in occupations in which shortages and surpluses might exist. A short questionnaire was prepared for this purpose and circulated to the district superintendents and managers over the Deputy Director's signature. Results were tabulated in the Boston College Bureau of Business Research as a basis for prelisting occupations on the Employer Questionnaire.

b. Survey of Employment Offices Regarding Unemployed Applicants

It was also necessary to ascertain the current unemployment labor force as represented by job applicants in the shortage/surplus occupations, and to accomplish this, a count was obtained of persons listed in the Employment Office files as seeking work in one or more of the selected occupations. This task, too, was done through a short questionnaire circulated to the 14 employment offices, and tabulations were completed in the Bureau office.

c. Survey of Public and Private Schools to Ascertain Output

As a means of estimating output from vocational schools which might fulfill employer needs in the occupations selected, questionnaires were developed and sent to all public and private schools of a vocational character in the Area. Telephone calls were made to school administrators who did not reply to the mailing, and personal visits were made to those who still did not reply or who were vague about doing so.

d. The Employer Survey

The Employer Survey was the major undertaking in the study and will be described in detail in Section 2.

*Standard Metropolitan Statistical Area is defined by the United States Census of 1960.

2. THE EMPLOYER SURVEY

There are four aspects of the **methodology** in any survey of this nature, and these are as follows: a) the questionnaire, b) the sample, c) the field work, and d) the processing. Each of these will be described below.

a. The Employer Questionnaire

The questionnaire in the employer survey was designed for mail response. However, as anticipated, the mail response was not high, and it was necessary to make telephone calls and personal visits to a large percentage of the respondents.

The questionnaire form was in two parts, I and II. Part I sought information about employment in general in the firm; Part II, about employment in certain occupations. The occupations were those in which shortages or surpluses were anticipated by 1966 on the basis of reviews described below.

1) **The Part I Questionnaire.** The Part I questionnaire was **the same for all types of industry** and requested the respondents to record total employment at mid-June 1963, and projections to June 1964 and June 1966 based upon the assumption "that present trends in business, technology and science will continue". Space was provided for the employer to indicate the reasons for anticipating increases or decreases, and to comment on the need for new or improved training courses. To insure that respondents unfamiliar with the Census term "Standard Metropolitan Statistical Area" would know what the Boston Area is, a map was provided which delineated the 76 cities and towns included in the SMSA.

2) **The Part II Questionnaire.** Whereas the Part I questionnaire was the same for all employers, there were **six different forms of Part II,** and the form which the respondent received depended upon the type of industry in which his firm was classified by the United States Department of Labor.

a. **Prelisted Occupations.** Names of suspected shortage and surplus occupations were obtained from four sources and were prelisted on the various forms of the Part II questionnaire.

The sources of the prelisted occupations were: (1) the survey of Boston area employment offices described above; (2) training needs and manpower skills surveys recently made in the nearby areas of Worcester, Massachusetts, and in Rhode Island and Connecticut; (3) cognizant personnel in the Massachusetts Division of Employment Security; and (4) the Advisory Committee for the Survey.

Shortage or surplus occupations likely to be found in **all** types of industry, (e.g., office occupations such as secretary) were prelisted, or pre-printed, on all forms of the Part II questionnaire.

The remaining occupations selected for study were pre-printed in one or other of the six versions of the Part II questionnaire, depending on the industry with which they were most closely identified.

b. **Additions Requested.** Although it was recognized that the information would be of qualitative value only, employers were requested to add, in the blanks provided for the purpose, information with respect to shortages or surpluses in any of the other survey occupations which were listed among the accompanying job descriptions and which might be found in their own establishments.

Employers were also instructed to add to the list any missing occupations in which they expected to experience recruitment difficulties in the three years ending in June 1966, as well as those in which they expected to employ **fewer** workers in June 1966 than in June 1963.

c. **Instructions to Respondents.** For questions which might not be completely self-explanatory, instructions were printed on the last page of the four-page questionnaire. In addition, a folder describing the survey objectives, sponsorship, and methods was included for review by respondents.

In order to insure uniformity of interpretation of job titles, a brief description of each listed occupation was prepared for mailing with the questionnaire.

Copies of questionnaires are shown in Appendix B, together with other pertinent materials.

b. The Employer Sample

1) **The Universe.** The universe in this study was all employers of **more than three** workers in the Boston Standard Metropolitan Statistical Area as defined in the United States Census of 1960. The universe included firms not covered by unemployment insurance as well as those covered, e.g.: manufacturing firms; service firms; federal, state, and local government; educational institutions; and so on.

In all, there were 26,036 employers in the universe, and they employed 1,018,030 persons as of November 15, 1962. It should be noted that many firms had more than one division, and the divisions were often located at different sites, yet these were classed as one firm.

2) **Selection of the Sample.** The sample used in this study was a systematic selection of all firms employing four or more in the 1960 Boston SMSA, with stratifications by size of firm (that is, number of employees).

The selection was made principally from a listing supplied by the Massachusetts Division of Employment Security. The listing included all firms employing four or more workers in November 1962 covered by the **Massachusetts Employment Security Law and the United States unemployment insurance program for Federal civilian workers.**

This list was supplemented by a listing of noncovered firms employing four or more persons compiled from several sources. The Research and Statistics Department Division of Employment Security lent the Bureau a file of index cards, representing noncovered organizations, which it had utilized in late 1962 in connection with proposed legislation. This information was supplemented by recourse to special directories, telephone books, etc., in order to arrive at the basic list of all covered and noncovered establishments in the "4-and-over" category operating in the Boston SMSA.

There were four strata as shown in the chart below. Within strata, firms were arranged in descending order by size, and systematic selections were made from the strata by starting with a random number between zero and k, the selection interval, and selecting every k^{th} firm. All firms with 250 or more employees were automatically included in the sample, that is, they were "pre-selected".

Stratum	Size of Establishment*	Sample ratios**	No. of firms in sample
I	250+	1:1	478
II	100 - 249	1:8	100
III	24 - 99	1:42	100
IV	4 - 23	1:208	100
Total	4 or more	--------	778

* i.e., number of workers

** Ratio of number of firms in sample to number in universe.

In the first contact with the establishment, the head of the firm was considered the potential respondent in all cases.

c. The Field Work

Mailings of materials were made to employers during the middle of July 1963, and follow-up letters were sent to those who had not returned completed questionnaires by August 9, i.e., approximately three weeks later. Telephone contacts with non-respondents were initiated at the same time. Many of the nonrespondents requested a second set of forms, the first set having apparently gone astray.

In the follow-up letter (as well as in the original request) and in the course of the telephone contacts, it was emphasized that the Bureau would be pleased to send a staff member to the employer's establishment to help in the completion of the questionnaire when such assistance was needed.

A second round of telephone calls effected further additions to the completed questionnaires on hand. There were, however, sizable

numbers of employers in all four strata whose questionnaires were still outstanding despite follow-up by letter and by telephone.

To raise the response rate to the desired minimum, personal interviews were arranged with the firms which had not responded to previous solicitation. These interviews brought in enough completed questionnaires to raise the over-all response rate—in terms of basic employment total represented by the respondents—to 82 percent. The final response rate varied by stratum as follows:

Stratum	No. of Workers in firm	Total November-1962 Employment			
		Universe	Firms in Sample	Included in Actual Responses	
				Number	Percent*
I	250 and over	548,926	548,926	449,639	82
II	100 - 249	108,212	15,017	12,474	83
III	24 - 99	184,234	4,208	3,799	90
IV	4 - 23	176,658	873	798	91
Total		1,018,030	569,024	466,710	82

* Base for percent is number of employees in the theoretical situation.

In all, less than 50 of the original 778 employers contacted actually refused to complete a questionnaire. Most of the refusals gave a lack of available staff time as the reason.

It will thus be realized that, in general, employers in the Boston SMSA were most cooperative in supplying the basic information needed for the Manpower Skills Survey.

d. **Processing of Results**

Returned questionnaires were edited and coded in the Boston College Bureau of Business Research and transmitted to the Division of Employment Security for coding by occupations and for processing on electronic statistical equipment. Project personnel supervised processing very closely throughout.

1) **Inflation of Sample.** Sample figures were inflated industry by industry by multiplying results from the two-digit industry by the ratio of total mid-November 1962 employment to the employment within that industry represented in the sample, with adjustments being made for non-response. Inflation factors were computed separately for each of the four original strata except in industries not represented by 100 or more employees in the sample returns. In the industries having fewer than 100 employees in any one stratum, original strata were combined. Of course, all firms in Stratum I (i.e., those employing 250 or more persons) were preselected, and the only inflation of information from them was the adjustment for non-response.

3. CHARACTERISTICS OF THE UNEMPLOYED

Within the limitations of the budget allotted to the project, it was not possible to survey unemployment in the entire range of occupations nor to cover jobless individuals not currently registered for work in the Division's local offices serving the Standard Metropolitan Statistical Area.

It was decided that the most that could be done at this time was to obtain information as to unemployed individuals represented in the local offices; active application files as of November 22, 1963, in the specific occupations which were covered by the survey, either because they were pre-listed on one or more of the questionnaire forms or because they had been added by one or more respondents as other "shortage" or "declining" occupations.

4. SURVEY OF TRAINING OUTPUT FROM PUBLIC AND PRIVATE SCHOOLS

In order to obtain basic information on the future labor supply represented by prospective graduates of vocational and technical schools within the Standard Metropolitan Area, questionnaires were sent to a comprehensive list of public and private schools that would likely conduct courses leading to the occupations covered by the survey. The list included both public and private schools.

The school output shown in the tables for the two years ending in June 1964 represents the number of students which the responding schools expected to graduate during that period, plus the anticipated output from courses to be completed during that period under the Manpower Development and Training Act.

The output of the Manpower Development and Training program to June 1964 was estimated from the "MDTA status reports" and reports on "completed MDTA programs," both issued monthly by the Massachusetts Division of Employment Security.

A list of the 83 public schools or public school systems and the 50 private schools which completed the questionnaire follows.

PRIVATE SCHOOLS
WHICH FURNISHED INFORMATION FOR THE SURVEY

American Training School
Aquinas Secretarial School
Bay State Academy
Boston School of Dental Nursing
Boston School of Mechanical Dentistry
Boston University, College of Business Administration
Boston University, College of Industrial Technology
Mary Brooks School
Bryant and Stratton
Burdett College
Cambridge School of Business
Carnegie Institute
Comptometer School
Copley Secretarial Institute
Chamberlayne Junior College
Data-Tech School of Business
Don Bosco Technical High School
Endicott Junior College
Fisher Junior College
Franklin Institute of Boston
Katherine Gibbs School
Hickox Secretarial School
Industrial School for Crippled Children
Lasell Junior College
Long Island School of Practical Nursing
Lynn Burdett College
Malden Business School
Best School of Machine Accounting
Boston School of Business Education
Massachusetts Bay Community College
Mass. Radio School
Massachusetts Trades Shops School
Newbury School of Business
New England Linotype School, Inc.
Newton Junior College
North Bennet Street Industrial School
Northeast Institute of Industrial Technology
Northeastern Univ., Lincoln College
Perkins School for the Blind
Plus School of Business
R-E-T- School
Robie Secretarial School
Salem Commercial School
Saunders Radio and Electronic School, Inc.
Lemuel Shattuck Hospital School of Practical Nursing
Shepard-Gill School of Practical Nursing
South Middlesex Secretarial School
Suburban Business School
Wentworth Institute
Winthrop Community Hospital, School of Practical Nursing

PUBLIC SCHOOLS
WHICH FURNISHED INFORMATION FOR THE SURVEY

Arlington Area Vocational School
Arlington Technical and Vocational High School
Bedford High School
Belmont Senior High School
Belmont Vocational School
Beverly Trade High School
Boston High Schools (11)
Boston Trade High Schools (2)
Braintree High School
Brookline High School
Burlington High School
Hamilton-Wenham Regional High School
Hanover High School
Hingham High School
Hull High School
Lexington High School
Lynn Shoemaking School
Lynn Trade High School
Lynnfield High School
Malden High School
Malden Vocational High School
Marblehead Senior High School
Marshfield High School
Masconomet Regional High School
Medfield Junior-Senior High School
Meldon Vocational High School
Melrose High School
Milton High School
Natick High School
Needham High School
Newton Technical High School
North Quincy High School
North Reading High School
Norwell High School
Peabody High School
Quincy High School
Quincy Trade School
Canton High School
Concord-Carlisle High School
Danvers High School
Dedham High School
Dover-Sherborn Regional High School
Duxbury High School
Everett Senior High School
Everett Vocational High School
Framingham Vocational High School
Randolph High School
Randolph Vocational High School
Reading Memorial High School
Revere High School
Salem Classical and High School
Salem Vocational High School
Saugus High School
Scituate High School
Sharon High School
Somerville High School
Somerville Trade High School
South Shore Vocational High School
Stoneham High School
Swampscott High School
Waltham High School
Waltham Vocational High School
Wakefield High School
Watertown High School
Wellesley Senior High School
Weston High School
Westwood High School
Weymouth High School
Weymouth Vocational Technical High School
Winchester Senior High School
Winthrop Senior High School
Woburn High School

APPENDIX B

PRINCIPAL FORMS AND FORM LETTERS USED IN SURVEY

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Job Descriptions for Listed Occupations 3
Employer Questionnaire — Part I ..... B - 13
Employer Questionnaire — Part II .....
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APPENDIX B

Principal Forms and Form Letters Used in Survey

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MANPOWER SKILLS SURVEY

of the

Boston Standard Metropolitan Statistical Area

BOSTON COLLEGE

College of Business Administration
Bureau of Business Research

July 1963

AUTHORITY FOR THE SURVEY

This survey is being conducted under a contract between Boston College (Bureau of Business Research) and the Massachusetts Division of Employment Security.

The Advisory Committee for the Survey is shown on Page 4 of this folder.

PURPOSES OF THE STUDY

The survey is aimed at identifying two groups of occupations, namely:

1. Those in which it is anticipated there will be important recruitment difficulties in the next three years due to a lack of qualified applicants, and

2. Those in which there are likely to be significant declines in employment during the next three years.

Obviously, the two groups are not mutually exclusive, although they undoubtedly tend to be so.

The survey is principally concerned with semi-professional, skilled and semi-skilled occupations. Those of a strictly professional nature, as well as those involving manual labor only, are generally excluded from the scope of the study.

SCOPE OF THE SURVEY

This particular study is confined to the Boston Standard Metropolitan Statistical Area, as defined for purposes of the 1960 U.S. Census. Besides the City of Boston, this area includes 75 surrounding cities and towns, stretching northeast to Manchester, north to Wilmington, west to Concord and Framingham, south to Sharon, and southeast to Duxbury.

METHOD

Questionnaires are being sent to approximately 800 firms, selected in such a way as to represent all firms in the area. These questionnaires will seek information about current and projected employment requirements in certain jobs in which it is suspected that significant shortages exist.

The information supplied by these firms will be analyzed by the Bureau of Business Research, which will issue a comprehensive report of its findings.

The validity of the findings will, of course, depend largely on how well the selected employers cooperate by promptly completing and returning the questionnaire. It is earnestly hoped that every such employer will furnish the information requested with respect to his individual establishment, and thus make a valuable contribution to the usefulness of the survey.

INSTRUCTIONS FOR USE

of

JOB DESCRIPTIONS

PLEASE READ CAREFULLY

1. The job descriptions which follow are listed in six "groups" plus a "general" category.

2. Most firms have the large majority of the occupations in the "general" group, and the "general" group is listed on all your questionnaires.

3. The remaining occupations are listed in Groups I to VI, and the questionnaire you receive contains only the occupations usually associated with your firm. You can tell the group in which your firm has been classed by noting the top of Page 3 (Part II) of your questionnaire.

4. Please look over the occupations listed here in the other groups. If your firm anticipates either a shortage or surplus of workers in one of the occupations described in another group here, list the occupation on your questionnaire and provide the requested data for it as well as for the occupations already listed by us on your questionnaire.

MANPOWER SKILLS SURVEY

Boston Standard Metropolitan Statistical Area

JOB DESCRIPTIONS FOR LISTED OCCUPATIONS

General

1-01.02 BOOKKEEPER-Keeps records of business transactions. Balances books and compiles reports at regular intervals to show receipts, expenditures, accounts receivable and payable, profit and loss, and other pertinent information.

1-02.01 BOOKKEEPING MACHINE OPERATOR-Keeps records, using bookkeeping machines. Enters required information on special form sheet, such as name, items purchased or sold, cost of items, services. Calculates totals, net amounts, and other financial items.

1-25 OFFICE MACHINE OPERATOR-Operates one or more office machines, such as adding machines , calculating machines, tabulating machines, bookkeeping machines, copy machines, registers.

1-25.13 COMPTOMETER OPERATOR-Usual duties associated with this occupation.

1-25.62 KEY-PUNCH OPERATOR-Usual duties associated with this occupation.

1-26.02 PAYROLL CLERKS-Usual duties associated with this occupation.

1-33.01 SECRETARY-Performs general office work and minor executive duties. Takes dictation by shorthand or stenotype machine. Answers phone; handles personal and executive mail; answers routine correspondence on own initiative.

1-34.04 RECEIVING CLERK-Receives goods, unpacks and verifies against bills of lading and invoices. Keeps records of goods received. Rejects damages or shortages. Routes or delivers incoming goods to proper dept. May ship material.

1-34.14 SHIPPING CLERK-Prepares merchandise for shipment or delivery. Selects goods ordered. Wraps, packs or crates for shipping. Weighs and labels or attaches postage to packages. Keeps records of article shipped. May receive incoming goods.

1-37.12 STENOGRAPHER-Takes dictation in shorthand and transcribes it on typewriter. May perform related clerical duties such as filing, distribution of reports, mailing, handling phone.

1-37.34 CLERK-TYPIST- Does general clerical work not requiring special schooling, but requiring the use of a typewriter.

5-83.641 MAINTENANCE MECHANIC-Keeps machinery and mechanical equipment in state of repair. Requires knowledge of the operation of machines under his care.

7-35.100 ROUTEMAN (milk, bread, laundry, etc.) Usual duties associated with this occupation: delivery; pick up; distribution; record of customer purchase.

0-48 DRAFTSMAN-Prepares complete and accurate working plans and drawings from sketches or notes for engineering or manufacturing purposes. Makes final sketch, checking dimension of part: materials to be used, relation of part to part and part to whole. Specify: e.g. electrical, marine, mechanical, etc.

0-50 LABORATORY ASSISTANT-Conducts tests and analyses of materials. Records results and keeps records of tests. Prepares and cares for laboratory equipment. Sets up equipment for experiments. Specify according to type of laboratory or type of duties; chemistry, metallurgy, medical, pathology, chemical analysis, hardness test, etc.

Group I

4-75.010 MACHINIST, GENERAL-Constructs and repairs all kinds of metal parts, tools, and machines. Understands blueprints and written specifications. Operates all machine tools, including lathes, milling machines, shapers, grinders, drill presses, and other specialized machines.

4-76.040 TOOL AND DIE MAKER-Constructs, repairs, and maintains shop tools, jigs, fixtures and instruments. Calibrates them according to specifications. Also constructs and repairs dies used for forging, punching, stamping and other metal forming work. Operates various machines; performs layout work; fitting and assembly of parts.

4-78.011 ENGINE LATHE OPERATOR- Usual duties associated with this occupation.

4-78.021 TURRET LATHE OPERATOR-Usual duties associated with this occupation.

4-78.031 MILLING MACHINE OPERATOR-Usual duties associated with this occupation.

4-78.411 CYLINDER GRINDER-Grinds the internal surfaces of cylinders to mirror-like smoothness. Selects and attaches proper tool (hone).

4-78.513 SURFACE GRINDER-Grinds plane surfaces or grooves in plane surfaces with machine that finishes metal with an accurately controlled abrasive wheel. May dress wheel by feeding it against diamond.

4-78.671 INSPECTOR, PRECISION-Examines parts or products for defects, checking dimensions against specifications. Uses precision-measuring instruments, such as calipers and micrometers. May test hardness of parts with Rockwell hardness tester, scleroscope, or other device.

4-80.010 SHEET METAL WORKER-Usual duties associated with this occupation.

4-84.012 SHIPFITTER-Aligns and fits structural members of ship hulls. Uses pins, wedges, jacks, hoists, and other such equipment to fit and install large structural members and structural accessories for welding, riveting, brazing, etc.

4-85.025 HELIARC WELDER-Welds a variety of ferrous and non-ferrous metals together, utilizing high frequency current and inert gas atmosphere at weld point.

5-83.444 ELECTRONIC TECHNICIAN-Tests, repairs, and adjusts electronic equipment such as radio, radar, computers, telemeter systems and control amplifiers, referring to manuals and schematic diagrams. May design and/or construct electronic apparatus or sections of electronic equipment. Tests and determines circuit characteristics, using meters, signal generators and cathode ray oscilloscopes. Tests and replaces defective parts. May install and field-test electronic equipment. May be responsible for providing charts, tables, graphs, or reports pertaining to tests, repairs or calibration of equipment.

6-27.056 DIE CUTTER- Operates a die-cutting machine to cut out or stamp small pieces of various shapes from cloth, cardboard or other light materials.

6-88.627 FORMING PRESS OPERATOR-Loads and operates a power press to trim, punch, shape, crimp or rivet, or press together light metal stock between appropriate dies to form metal articles.

6-95.010 SOLDERERS AND WIRERS - Connects components and terminal in an electronic or electrical assembly by wiring or soldering after components have been mounted or installed on chassis, in cabinets, or on printed circuit boards. Solders parts into circuits of radios and other electronic devices or solders wires to parts of electrical equipment. Works from blueprints, wiring diagrams, and schematic drawings.

6-78 MACHINE OPERATORS (Specify type).

Group II

4-09.204 BONER AND DRESSER (Meat Packing)-Prepares beef or pork carcass for cutting. Removes head, viscera and appendages. Splits carcass in half. Removes large sections of meat for processing.

4-26.201 TAILOR (garment industry)-Usual duties associated with this occupation.

4-48.050 OFFSET PRESSMAN-Operates offset printing press that imprints stock sheets with illustration or type material from zinc lithograph plates. Sets up press, verifies work, and cleans press.

4-61.770 LASTER (Puller-Over, Hand and Machine)-Stretches and fastens upper parts of shoe into its proper size and shape temporarily until edges are cemented and tacked to insole. Inserts shoe counters in proper position in shoe upper.

6-27.5 SEWING MACHINE OPERATOR- Usual duties associated with this occupation.

6-61.042 CUTTERS (B&S)-Performs the cutting, splitting or perforating operations of shoe parts by machine.

6-61.051 EDGE TRIMMER (B&S) - Cuts to size and smooths edge of soles of shoes on edge-trimming machine.

6-61.131 MARKER (Hand, B&S)-Stamps or marks outlines of shoe uppers on leather to serve as guides for subsequent operations.

6-61.2 STITCHERS (B&S)-211 - Sews together various shoe parts, using a sewing machine. 227-Is skilled in operations of several types of shoe-stitching machines. Performs various stitching jobs.

Group III

0-52.83 PRACTICAL NURSE (L. P. N.)-Performs nursing duties applying knowledge acquired through formal training and practical experience. Attends to personal appearance and comfort of patients. Takes and records pulse and temperature and performs other services prescribed by physician, such as administering medicines and giving injections. Licensed and qualified by passing prescribed state examinations.

1-32.10 DENTAL ASSISTANT - Prepares patients and assists dentist during treatment. May sterilize instruments, prepare fillings, arrange appointments, keep records.

MEDICAL RECORD TECHNICIAN-Assists medical records librarian in sorting and classifying medical records, case histories and reports for filing and reference. Types and files index cards with locations and description of medical records and reports. Uses shorthand to transcribe notes and information from librarian. Locates records and transcribes information from records upon request.

2-26 COOKS AND CHEFS, general-Usual duties associated with this occupation.

2-27.02 WAITER or WAITRESS (Formal)- Usual duties associated with this occupation. Differs from informal waiter in degree of formality in the service. May recommend dinner courses and appropriate wines. May also prepare and serve portions directly to diner from serving cart. Sets and serves food in accordance with well established rules of dining etiquette.

2-27.12/.13 WAITERS OR WAITRESSES (informal) and COUNTERGIRLS or COUNTERMEN - Usual duties associated with these occupations.

2-29.03 SPECIAL DIET WORKER - Under supervision of dietician. Apportions food in accordance with diets in a hospital. May also do the cooking.

2-32.12 HAIRDRESSER - Usual duties associated with this occupation.

2-42.10 HOSPITAL ORDERLY (male)-Assists professional nursing staff by performing various heavy-duty cleaning and odd jobs. Female title - NURSE AIDE.

2-42.20 NURSE AIDE (female)-Assists professional nursing staff in hospital by performing routine or less skilled tasks in the care of patients. Bathes and dresses patient, makes beds, serves meals, assists patients in exercising. Gives alcohol rubs. Cleans room and equipment. Male title - ORDERLY.

PSYCHIATRIC AIDE (e.g. Ward Attendant) - Assists in specialized care and treatment required by mentally ill patients. Basic duties same as ORDERLY or NURSE AIDE, but in addition, recognizes and understands characteristics and behavior of various types of mentally ill patients. Observes activity of patients and reports unusual incidents or behavior to Ward Supervisor.

2-95.20 ELEVATOR OPERATOR - Usual duties associated with this occupation.

5-83.611 BUILDING MAINTENANCE MAN - Keeps machinery equipment and structure of establishment in good repair. Can use tools of carpenter, machinist, painter and plumber.

7-83.058 ELECTRICAL APPLIANCE REPAIRMAN - Usual duties associated with this occupation. Fixes such things as: toasters, flatirons, mixers, fans, etc.

Group IV

0-41.10 AIRPLANE PILOT - Usual duties associated with this occupation.

5-81.010 AUTO MECHANIC - Usual duties associated with this occupation.

5-81.510 AUTOBODY REPAIRMAN - Removes dents in body and fenders. Finishes surface. May weld breaks.

7-36 TRUCKDRIVER (local) - He may drive either light or heavy truck. Delivery routes are confined to a specific area, such as the Metropolitan Boston area.

7-60.500 SERVICE STATION ATTENDANT - Usual duties.

Group V

1-25.68 PROOF MACHINE OPERATOR (banks)-Sorts, records, proves, and endorses bank transactions, such as check clearance, deposits and withdrawals.

1-55.40 OUTSIDE SALESMAN (canvasser)-Solicits business for an establishment by outside contacts, such as door-to-door or following leads. Explains services or products of his establishment, quotes prices, takes orders or sells directly. Distributes advertising literature, samples and promotional materials.

1-70.80 RETAIL SALES CLERK - Displays, explains and sells merchandise to customers on sales floor. Helps customer make selection, receives payment, fills out sales slips or contracts. May keep stock or supplies in order.

4-01.100 BAKER - Usual duties associated with this occupation.
5-58.100 BUTCHER, MEAT-CUTTER (retail trade) - Usual duties.
4-32.100 FURNITURE REPAIRMAN - Usual duties.
5-83.941 REFRIGERATION MECHANIC (Includes Air-Conditioning Mechanic)-Installs, maintains and repairs refrigerating equipment used in refrigerating plants, air-conditioning systems, water-cooling in buildings, etc.

Group VI

3-40.06 GARDENER-LANDSCAPER - Plans and executes small-scale landscaping, such as grading, conditioning soil, planting or transplanting of trees, shrubs, etc.
4-97.010 ELECTRICIAN - Usual duties associated with this occupation.
5-25.110 CARPENTER - Usual duties associated with this occupation.

MANPOWER SKILLS SURVEY

Boston Standard Metropolitan Statistical Area

EMPLOYER QUESTIONNAIRE (Confidential)

Please complete and return to: Dr. Charles L. Vaughn, Director
Bureau of Business Research
Boston College
Chestnut Hill 67, Massachusetts

Telephone: DEcatur 2-3200
Extension 281

PART I

1. Name of firm or other organization

2. Street and no. of firm or organization

3. Town or city of firm or organization

4. Name of person completing report

5. Title of person completing report

6. Tel. no. and ext. of person completing report

7. Organization address of person completing report

8. What was the combined total number of part and full-time employees on **all payrolls** of your establishment(s) in the **Boston Standard Metropolitan Statistical Area** for the pay period ending nearest June 15, 1963? (See SMSA map at right.)

Total number of employees, mid-June, 1963 _____

Include persons on vacation or sick leave who received pay directly from your organization for the pay period.

Exclude persons on leave without pay, pensioners and members of the Armed Forces carried on the rolls but not working during the pay period reported.

8M. Boston Standard Metropolitan Statistical Area (SMSA).

-B-13-

(750-6-63)

FOR ITEMS 9 THROUGH 24 ASSUME THAT PRESENT TRENDS IN BUSINESS, TECHNOLOGY AND SCIENCE WILL CONTINUE.

9. **One year hence** (i.e., in June, 1964) what do you estimate will be your employee total to be fully staffed in the Boston SMSA?

Total estimated SMSA employees June, 1964 _____

10. **Three years hence** (i.e., in June, 1966) what do you estimate will be your employee total to be fully staffed in the Boston SMSA?

Total estimated SMSA employees June, 1966 _____

11. For those occupations (as listed in Part II) in which you expect your employee requirements to increase during the next three years, please indicate below the reasons for the anticipated increase.

(Continue on additional sheet, if necessary.)

12. For those occupations (as listed in Part II) in which you expect your employee requirements to decrease during the next three years, please indicate below the reasons for the anticipated decrease.

(Continue on additional sheet, if necessary.)

13. For what occupation(s), if any, does your experience indicate that current training programs are inadequate, or that new internal or external training programs should be established to provide qualified workers?

Title(s) of Occupation(s)	Comments

(Continue on additional sheet, if necessary.)

Employment in Specific Occupations
(Items 15-24)

See page 4 for explanation of items.

14.	15.	16.	17.	18.		19.	20.	21.	22.	23.	24.
D.O.T. Code (Leave blank)	Occupational Title	Total number of persons employed mid-June 1963	Number of vacancies mid-June 1963	Check (✓) current labor supply situation		Estimated employment to be fully staffed as of:		Number needed to replace labor-force drop-outs during period from June, 1963, to:		Employees expected to complete formal company training programs during period from June, 1963, to:	
				a. Easy to fill	b. Hard to fill	June 1964	June 1966	June 1964	June 1966	June 1964	June 1966
1-01.02	Bookkeeper										
1-02.01	Bookkeeping Machine Operator										
1-25	Office Machine Operator										
1-25.13	Comptometer Operator										
1-25.62	Key Punch Operator										
1-26.02	Payroll Clerks										
1-33.01	Secretary										
1-34.04	Receiving Clerk										
1-34.14	Shipping Clerk										
1-37.12	Stenographer										
1-37.34	Clerk-Typist										
5-83.641	Maintenance Mechanic										
7-35.100	Routeman (milk, bread, etc.)										
0-48	Draftsman (specify below)										
0-50	Laboratory Assistant (specify below)										
4-75.010	Machinist (general)										
4-76.040	Tool and Die Maker										
4-78.011	Engine Lathe Operator										
4-78.021	Turret Lathe Operator										
4-78.031	Milling Machine Operator										
4-78.411	Cylinder Grinder										
4-78.513	Surface Grinder										
4-78.671	Inspector, Precision										
4-80.010	Sheet Metal Worker										
4-84.012	Shipfitter										
4-85.025	Heliarc Welder										
5-83.444	Electronic Technician										
6-27.056	Die Cutter										
6-88.627	Forming Press Operator										
6-95.010	Solderers and Wirers										
6-78	Machine Operators (specify below)										

Explanation of Items in Part II

Column 15. Occupational Title. Certain occupations are already listed on the table. If you neither employ nor expect to employ a worker in any of these occupations, during the next three years, draw a line through such title(s).

Add to the list of titles any other occupations in which you are experiencing or anticipate experiencing difficulty in recruitment during the next three years. Confine additions to semiprofessional and other selected occupations for which training might be completed in a year or less, but exclude strictly manual labor jobs. Also add to the list of titles any other occupations in which you expect to employ fewer workers three years hence.

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Columns 23, 24. Employees Expected to Complete Formal Company Training Programs. Enter the number of individuals expected to complete formal in-plant training programs in each listed occupation which would qualify them for entry into that occupation in the next year and in the three-year period ending June 1966.

* * * * * * * * * * *

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Report desired ☐

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Employment in Specific Occupations
(Items 15-24)

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1-01.02	Bookkeeper										
1-02.01	Bookkeeping Machine Operator										
1-25	Office Machine Operator										
1-25.13	Comptometer Operator										
1-25.62	Key Punch Operator										
1-26.02	Payroll Clerks										
1-33.01	Secretary										
1-34.04	Receiving Clerk										
1-34.14	Shipping Clerk										
1-37.12	Stenographer										
1-37.34	Clerk-Typist										
5-83.641	Maintenance Mechanic										
7-35.100	Routeman (milk, bread, etc.)										
0-48	Draftsman (specify below)										
0-50	Laboratory Assistant (specify below)										
4-09.204	Boner and Dresser (meat packing)										
4-26.201	Tailor (garment industry)										
4-48.050	Offset Pressman										
4-61.077	Laster										
6-27.5	Sewing Machine Operator										
6-61.042	Cutters (B&S)										
6-61.051	Edge Trimmer (B&S)										
6-61.131	Marker (hand, B&S)										
6-61.2	Stitchers (B&S)										

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Employment in Specific Occupations
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7-35.100	Routeman (milk, bread, etc.)										
0-48	Draftsman (specify below)										
0-5[illegible]	Laboratory Assistant (specify below)										
0-52.83	Practical Nurse (L.P.N.)										
1 32.10	Dental Assistant										
	Medical Record Technician										
-26	Cooks and Chefs										
2 2	Waiter or Waitress (Formal)										
2-27.12/.13	Waiters or Waitresses (Informal)										
2-29.03	Special Diet Worker										
2-32.12	Hairdresser										
2-42.10	Hospital Orderly (male)										
2-42.20	Nurse Aide (female)										
	Psychiatric Aide										
2-95.20	Elevator Operator										
5-83.611	Building Maintenance Man										
7-83.058	Electrical Appliance Repairman										

B-19-

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PART II Group [ ] Industries

Employment in Specific Occupations
(Items 15-24)

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7-35.100	Routeman (milk, bread, etc.)										
0-48	Draftsman (specify below)										
0-50	Laboratory Assistant (specify below)										
0-41.10	Airplane Pilot										
5-81.010	Auto Mechanic										
5-81.510	Autobody Mechanic										
7-36	Truck Driver (local)										
7-60.500	Service Station Attendant										

B-21

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(Items 15-24)

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1-33.01	Secretary										
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5-83.641	Maintenance Mechanic										
7-35.100	Routeman (milk, bread, etc.)										
0-48	Draftsman (specify below)										
0-50	Laboratory Assistant (specify below)										
1-25.68	Proof Machine Operator (banks)										
1-55.40	Outside Salesman (canvasser)										
1-70.80	Retail Sales Clerk										
4-01.100	Baker										
5-58.100	Butcher, Meat Cutter (retail trade)										
4-32.100	Furniture Repairman										
5-83.941	Refrigeration Mechanic, Includes Air Conditioning Mechanic										

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Column 15. Occupational Title. Certain occupations are already listed on the table. If you neither employ nor expect to employ a worker in any of these occupations, during the next three years, draw a line through such title(s).

Add to the list of titles any other occupations in which you are experiencing or anticipate experiencing difficulty in recruitment during the next three years. Confine additions to semiprofessional and other selected occupations for which training might be completed in a year or less, but exclude strictly manual labor jobs. Also add to the list of titles any other occupations in which you expect to employ fewer workers three years hence.

Column 16. Total Number of Persons Employed in Mid-June 1963. Enter the number of persons employed in each occupation as of mid-June 1963 – i.e., the pay period nearest June 15, 1963. Include both full-time and part-time employees. Do not include trainees in formal on-the-job company training programs.

Column 17. Number of Vacancies in Mid-June 1963. Enter the number of unfilled job openings in each occupation for which you were actively recruiting as of mid-June 1963. If none, enter "0".

Column 18. Current Labor Supply Situation. If vacancies are currently easy to fill in an occupation, indicate with a check-mark in column a.; if vacancies are hard to fill in an occupation, indicate with a check-mark in column b. If you don't know, leave blank.

Columns 19, 20. Estimated Employment to be Fully Staffed. Enter the estimated total number of persons you will need in each occupation to be fully staffed in mid-June, 1964 and in mid-June, 1966. (Where you expect to have fewer employees than you now have in a listed occupation, the estimated future employment will be less than the current figure.)

Columns 21, 22. Estimated Number Needed to Replace Labor-Force Drop-outs. Enter the number of employees in each occupation you estimate will have to be replaced in the next year and in the three-year period ending June 1966, because of withdrawal from the labor force for all reasons, such as retirement, marriage, disability or entry into the Armed Forces. Do not include in these numbers the separations due to layoffs for lack of work, leaving for other jobs, discharges and voluntary quits.

Columns 23, 24. Employees Expected to Complete Formal Company Training Programs. Enter the number of individuals expected to complete formal in-plant training programs in each listed occupation which would qualify them for entry into that occupation in the next year and in the three-year period ending June 1966.

* * * * * * * * * * *

If you would like a copy of the report on this survey, please indicate by a check-mark below.

Report desired ☐

An extra set of forms is enclosed in order that you may have a file copy for reference in the event that a question should arise in connection with your report.

Employment in Specific Occupations
(Items 15-24)

See page 4 for explanation of items.

14.	15.	16.	17.	18.		19.	20.	21.	22.	23.	24.
D.O.T. Code (Leave blank)	Occupational Title	Total number of persons employed mid-June 1963	Number of vacancies mid-June 1963	Check (✓) current labor supply situation		Estimated employment to be fully staffed as of:		Number needed to replace labor-force drop-outs during period from June, 1963, to:		Employees expected to complete formal company training programs during period from June, 1963, to:	
				a. Easy to fill	b. Hard to fill	June 1964	June 1966	June 1964	June 1966	June 1964	June 1966
1-01.02	Bookkeeper										
1-02.01	Bookkeeping Machine Operator										
1-25	Office Machine Operator										
1-25.13	Comptometer Operator										
1-25.62	Key Punch Operator										
1-26.02	Payroll Clerks										
1-33.01	Secretary										
1-34.04	Receiving Clerk										
1-34.14	Shipping Clerk										
1-37.12	Stenographer										
1-37.34	Clerk-Typist										
5-83.641	Maintenance Mechanic										
7-35.100	Routeman (milk, bread, etc.)										
0-48	Draftsman (specify below)										
0-50	Laboratory Assistant (specify below)										
3-40.06	Gardener-Landscaper										
4-97.010	Electrician										
5-25.110	Carpenter										

Explanation of Items in Part II

Column 15. Occupational Title. Certain occupations are already listed on the table. If you neither employ nor expect to employ a worker in any of these occupations, during the next three years, draw a line through such title(s).

Add to the list of titles any other occupations in which you are experiencing or anticipate experiencing difficulty in recruitment during the next three years. Confine additions to semiprofessional and other selected occupations for which training might be completed in a year or less, but exclude strictly manual labor jobs. Also add to the list of titles any other occupations in which you expect to employ fewer workers three years hence.

Column 16. Total Number of Persons Employed in Mid-June 1963. Enter the number of persons employed in each occupation as of mid-June 1963 – i.e., the pay period nearest June 15, 1963. Include both full-time and part-time employees. Do not include trainees in formal on-the-job company training programs.

Column 17. Number of Vacancies in Mid-June 1963. Enter the number of unfilled job openings in each occupation for which you were actively recruiting as of mid-June 1963. If none, enter "0".

Column 18. Current Labor Supply Situation. If vacancies are currently easy to fill in an occupation, indicate with a check-mark in column a.; if vacancies are hard to fill in an occupation, indicate with a check-mark in column b. If you don't know, leave blank.

Columns 19, 20. Estimated Employment to be Fully Staffed. Enter the estimated total number of persons you will need in each occupation to be fully staffed in mid-June, 1964 and in mid-June, 1966. (Where you expect to have fewer employees than you now have in a listed occupation, the estimated future employment will be less than the current figure.)

Columns 21, 22. Estimated Number Needed to Replace Labor-Force Drop-outs. Enter the number of employees in each occupation you estimate will have to be replaced in the next year and in the three-year period ending June 1966, because of withdrawal from the labor force for all reasons, such as retirement, marriage, disability or entry into the Armed Forces. Do not include in these numbers the separations due to layoffs for lack of work, leaving for other jobs, discharges and voluntary quits.

Columns 23, 24. Employees Expected to Complete Formal Company Training Programs. Enter the number of individuals expected to complete formal in-plant training programs in each listed occupation which would qualify them for entry into that occupation in the next year and in the three-year period ending June 1966.

* * * * * * * * * * *

If you would like a copy of the report on this survey, please indicate by a check-mark below.

Report desired ☐

An extra set of forms is enclosed in order that you may have a file copy for reference in the event that a question should arise in connection with your report.

BOSTON COLLEGE
COLLEGE OF BUSINESS ADMINISTRATION
CHESTNUT HILL
MASSACHUSETTS

BUREAU OF BUSINESS RESEARCH

As you will note from the enclosed folder, we are making a survey of occupational skills in the Boston area. The purpose is to identify important occupations for which there may be: (a) a shortage of labor or (b) a surplus of labor, during the next three years.

The information requested in the enclosed questionnaire, which can only be obtained from employers in the area, is essential to the success of the study, and we are counting on your cooperation in completing and returning the questionnaire to us. All such information will be held in strictest confidence and will be released only in statistical form.

The instructions on Page 4 of the questionnaire will, in most cases, enable the employer to complete the form without difficulty. Although the information for future periods must necessarily be estimates, your estimates will be infinitely better than any purely statistical projections that might be made here.

Although the questionnaire will involve some expenditure of staff time, we hope you will consider it worthy of your cooperation. Listed on the enclosed folder are the names of some of the outstanding community leaders who are serving on the Advisory Committee for the project.

In the event any problem should arise in connection with the questionnaire, please contact the Bureau (DE 2-3200, ext. 281), and one of our staff members will be glad to assist you. Your cooperation will be sincerely appreciated.

Sincerely yours,

Charles L. Vaughn, Ph. D.
Director

CLV/wbc
enc.

BOSTON COLLEGE
COLLEGE OF BUSINESS ADMINISTRATION
CHESTNUT HILL
MASSACHUSETTS

BUREAU OF BUSINESS RESEARCH

We have not yet received from your firm the questionnaire which we recently asked you to complete for purposes of the Manpower Skills Survey of the Boston Metropolitan Statistical Area.

To ensure the validity of the Survey findings, it is of the utmost importance that the Bureau obtain a maximum response from employers.

If you need additional questionnaire forms, we shall be glad to furnish them; if you require assistance in completing the forms, we shall be pleased to help. In either event, please telephone us. The Bureau's telephone is DE 2-3200, extension 281. (If you have already mailed your completed questionnaire, this communication should, of course, be disregarded.)

-B-29-

We are counting on your cooperation. You may be sure that it will be appreciated.

Yours sincerely,

Charles L. Vaughn, Ph. D.
Director

CLV/wbc
encs.

P. S. Could you please have the completed questionnaire back to us by August 15?

C.L.V.

MANPOWER SKILLS SURVEY

BOSTON STANDARD METROPOLITAN STATISTICAL AREA

Students Completing Vocational Courses in Private Schools

Questionnaire

Please complete and return to: Dr. Charles L. Vaughn, Director
Bureau of Business Research
College of Business Administration
Boston College
Chestnut Hill 67, Massachusetts

Tel. DEcatur 2-3200 Ext. 281

1. Name of School	3. Name of Person Completing Form
2. Address of School (St., No. and City or Town)	4. Title of Person Completing Form

5. General Description of School and Courses of Study

6. Courses of Study The course of study may be a single course, or group of related courses, e.g., Electronic Technician, Barber, Secretary, Licensed Practical Nurse, which prepares a student for direct entry into an occupation.	7. Length of time required to complete course (Weeks)	8. Number of persons completing course July 1, 1962 to June 30, 1963	9. Estimated no. of persons expected to complete course July 1, 1963 to June 30, 1964

-B-31-

750—6-18-63

MANPOWER SKILLS SURVEY

BOSTON STANDARD METROPOLITAN STATISTICAL AREA

Students Completing Vocational Courses in Public Schools

Questionnaire

Please complete and return to: Dr. Charles L. Vaughn, Director
Bureau of Business Research
College of Business Administration
Boston College
Chestnut Hill 67, Massachusetts
Tel. DEcatur 2-3200 Ext. 281

1. Town or city	2. Name of person completing report
	3. Title of person completing report

4. Course of Study A course of study may be a single course or a group of related courses leading to a specific occupational objective such as Electronic Technician, Secretary or Licensed Practical Nurse. Completion indicates that the student is qualified for direct entry into that occupation. Do not include training courses which are given as part of apprenticeship or in-plant training programs.	5. Length of time required to complete course (weeks)	6. Number of persons completing course July 1, 1962 to June 30, 1963	7. Number of persons expected to complete course July 1, 1963 to June 30, 1964
8. Name(s) of school(s) covered by this report:			

750—6-19-63

BOSTON COLLEGE
COLLEGE OF BUSINESS ADMINISTRATION
CHESTNUT HILL
MASSACHUSETTS

BUREAU OF BUSINESS RESEARCH

COPY

June 18, 1963

Dear Sir:

As you will note from the enclosed folder, "Manpower Skills Survey," the Bureau of Business Research of Boston College is making a survey of occupational skills in the Boston Standard Metropolitan Statistical Area. An important part of the project is the determination of the number of persons completing training or education preparing them for direct entry into an occupation or profession.

Since the only source of this information is the school itself, the Bureau is asking your assistance in completing the attached questionnaire and returning it in the enclosed self-addressed envelope. (The second form is for your file copy.)

Your co-operation will be sincerely appreciated.

Yours very truly,

(signed) Charles L. Vaughn, Ph. D.
Director

BOSTON COLLEGE
COLLEGE OF BUSINESS ADMINISTRATION
CHESTNUT HILL
MASSACHUSETTS

BUREAU OF BUSINESS RESEARCH

COPY

July 10, 1963

Dear Sir:

The Bureau of Business Research of Boston College is making a survey of occupational skills in the Boston Standard Metropolitan Statistical Area, in which your school system is included. An important part of the project is the determination of the number of persons who complete training or education in the public schools which prepares them for direct entry into an occupation or profession. Terminal courses or job-objective courses given at all levels---high schools, vocational schools, evening classes or extension -- are to be considered.

Since the only reliable source of this information is the administrative office of the school system, the Bureau is asking your assistance in completing the attached questionnaire and returning it in the enclosed self-addressed envelope. (The second form is for your file copy.)

Your cooperation will be sincerely appreciated.

Yours very truly,

Charles L. Vaughn, Ph. D.
Director

CLV/wbc
encs.

7582 68

M36.6 B Boston College.
College of Bus. Adm. Bureau
of Business Research.

Manpower Skills Survey.

DATE	ISSUED TO
10/7/69	J. Elliott

au